















urham.

Photo. by Travis Burton

# THE JOURNAL OF THE NATIONAL SMOKE ABATEMENT SOCIETY

---

VOL. VI.  
NO. 21.

FEBRUARY  
1935

PUBLISHED  
QUARTERLY  
2/6 a year



# PHURNOD

## THE NATURAL SMOKELESS COAL

FOR  
(1) HOT WATER BOILERS  
(2) THE OPEN FIRE



*Read this unsolicited testimonial from an architect :—*

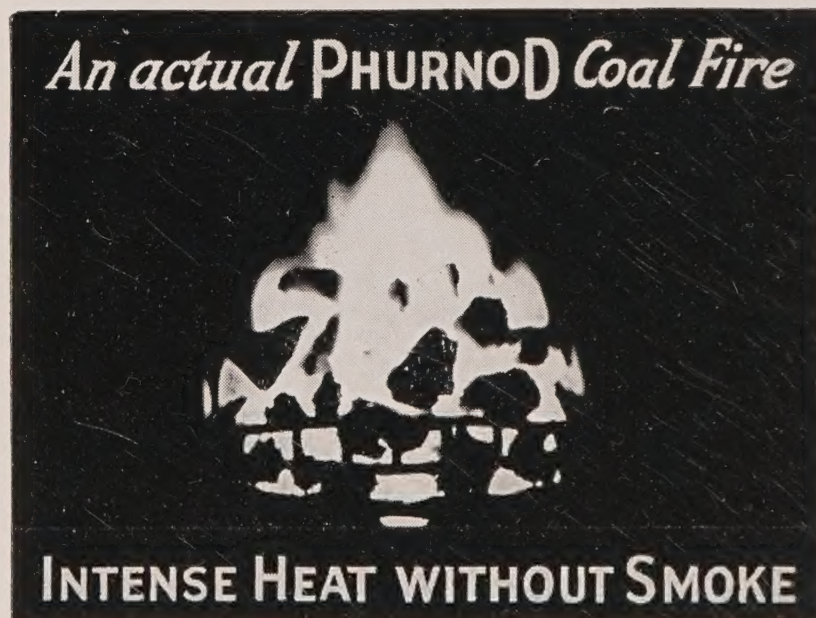
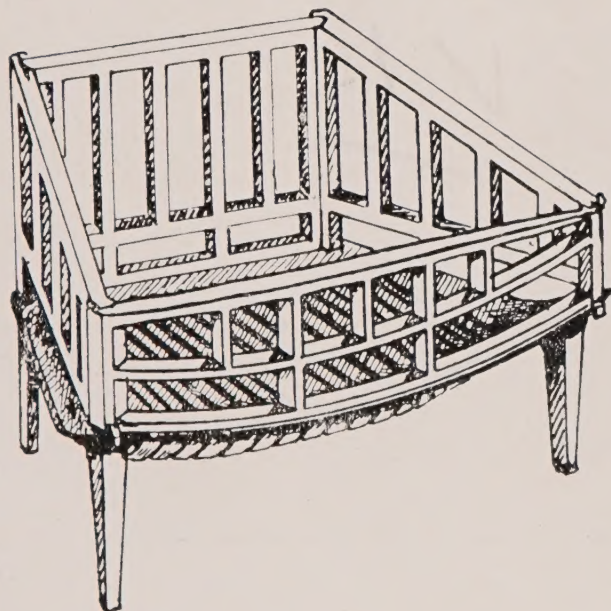
Harpenden, Herts.

"You will be interested to hear that it is TWELVE MONTHS AGO since the fire in my No. 02 'Ideal' Hot Water Boiler was relit, and it has been going CONTINUOUSLY DAY AND NIGHT EVER SINCE, entirely on the PHURNOD fuel you have supplied us with from time to time. It has had normal attention from three or four different people during this period."

"I thoroughly recommend PHURNOD for use in the 'Ideal' or any similar type of small Domestic Boiler, as it undoubtedly does give the maximum amount of heat for fuel consumed, with very little dust, and what is more important, an entire absence of clinker if normally used."

## PHURNOD FOR THE OPEN FIRE

By means of a simple and inexpensive device, called the "SUVIUS" Grate Fitment, which rests on top of "Pyramid" and similar types of barless grates, PHURNOD Cobbles and Large Nuts will give the finest **OPEN COAL FIRE WITHOUT SMOKE** which burns for hours without attention and leaves very little ash.



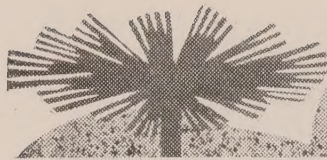
*For name of nearest stockist and further particulars regarding PHURNOD or the SUVIUS Grate Fitment, please communicate with :—*

### STEPHENSON CLARKE & ASSOCIATED COMPANIES LIMITED

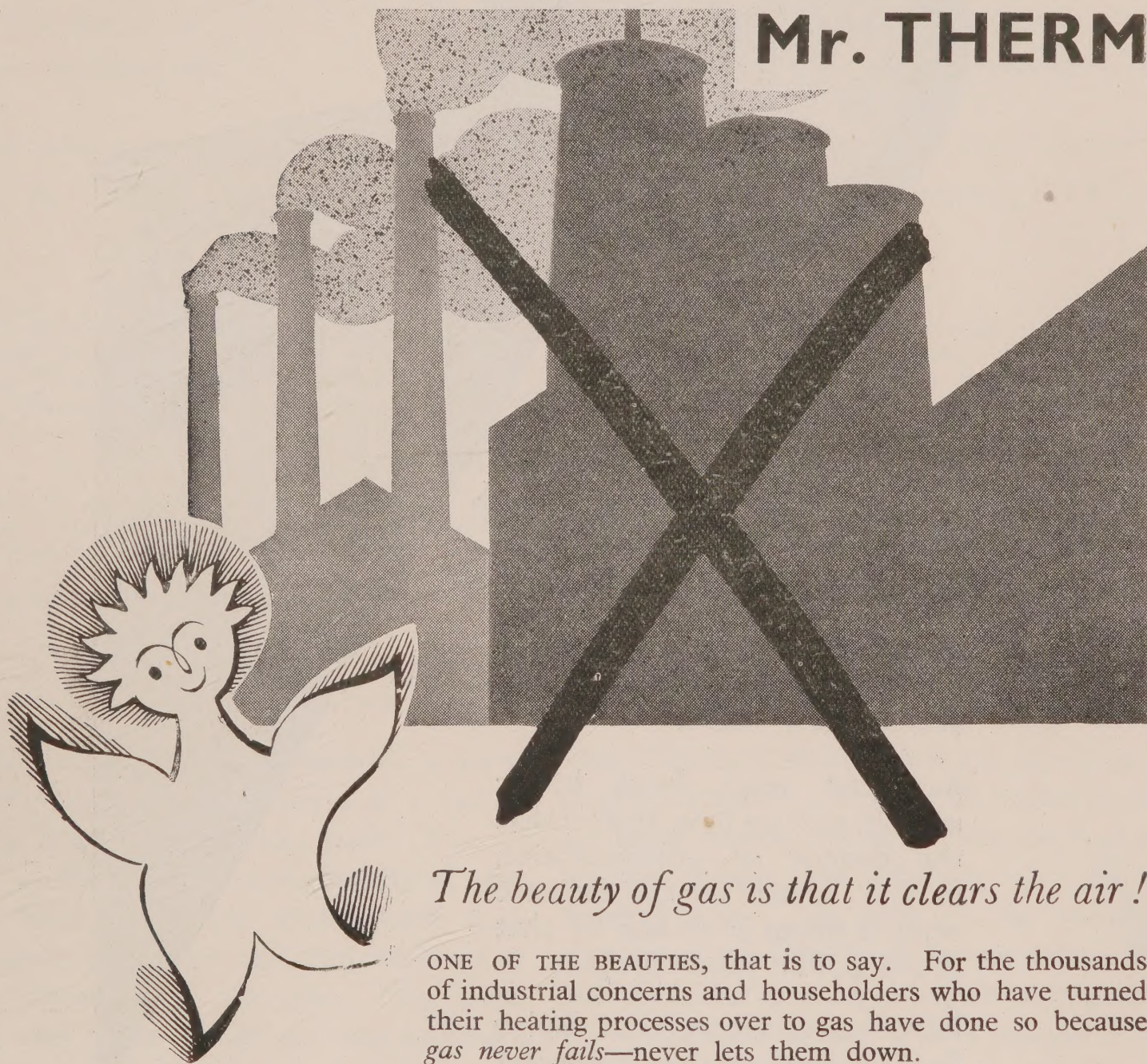
4, ST. DUNSTAN'S ALLEY, LONDON, E.C.3.

And at :—Cardiff, Southampton, Birmingham, Nottingham, Liverpool, Hull,  
Newcastle-on-Tyne, Glasgow, Belfast.





**'I CLEAR THE AIR'** *says*  
**Mr. THERM**



*The beauty of gas is that it clears the air!*

ONE OF THE BEAUTIES, that is to say. For the thousands of industrial concerns and householders who have turned their heating processes over to gas have done so because *gas never fails*—never lets them down.

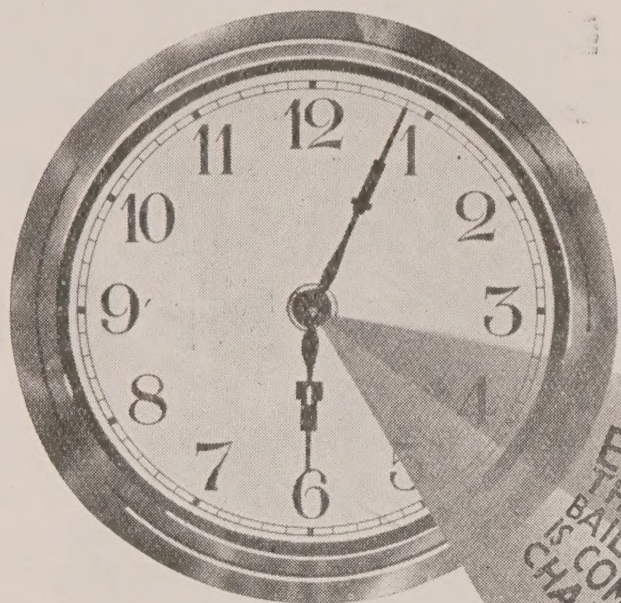
And because gas is cheap.

*For literature on gas in relation to smoke abatement, please write to the* **BRITISH COMMERCIAL GAS ASSOCIATION,**  
28 Grosvenor Gardens, London, S.W.1.

**GET  
UP-TO-DATE  
WITH**

**GAS**





EVERY 4 MINUTES  
THE WATER IN A  
BAILEY FURNACE  
IS COMPLETELY  
CHANGED

EVERY Bailey water cooled furnace wall is designed so that the water is subject to frequent change. At high loads the time will be less than 4 minutes, and below normal loads the time will be proportionately more.

Repeated tests from boiler units in service have shown that the degree of concentration in the water in the furnace walls is never in excess of that in the boiler water proper.

Experience shows that Bailey Furnace construction is correct from all points of view.

# BABCOCK & WILCOX

LIMITED

BABCOCK HOUSE, FARRINGTON STREET, LONDON, E.C.4

*Rytad*

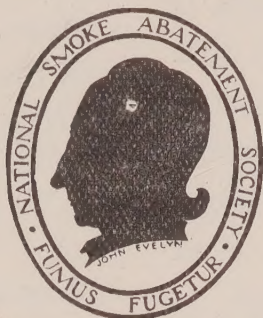


# The Journal of the National Smoke Abatement Society

Editor : ARNOLD MARSH, M.Sc.Tech.

Editorial Office :  
36, King Street,  
Manchester, 2.

Telephone : Blackfriars 0896.



Advertisement Office :  
The Service Guild Ltd.,  
49, Deansgate, Manchester, 3

Telephone : Blackfriars 3313

Vol. 6. No. 21.

February, 1935.

## Principal Contents.

	Page		Page
Commentary .. .. .	3	The Evidence .. .. .	19
Smoke Abatement and Commercial Interests	5	The Solid Products of Carbonization ..	21
Recent Fogs in London .. .. .	7	Correspondence : H. F. Taylor ..	25
From Coal Fires to Cleanliness .. .. .	9	The White Gate Housing Estate at Chadderton .. .. .	27
Gas For Domestic Heating : A Review of Recent Developments .. .. .	11	News and Views .. .. .	28

The Journal is open for free discussion of all aspects of the smoke problem, and the opinions expressed in contributed articles are not necessarily the same as the views of the Society. Quotations and abstraction of matter appearing in the Journal is welcomed, provided the usual acknowledgments are made.

## COMMENTARY

THAT familiarity breeds contempt is never more apparent than when it is a case of becoming familiar with death. War, of course, is the most extreme example of this, and the same thing is seen in the weekly death roll of about one hundred and fifty, which results from accidents upon our roads. The death of one man in an unusual way may become a newspaper sensation ; the deaths of a score through a strange and unexpected calamity will arouse the horror of the whole nation ; but the news of hundreds of unnatural deaths from familiar causes is received with a strange lack of emotion. A notable example of this was the deaths of sixty-five people during a heavy fog in the Meuse Valley in December, 1930. It was unprecedented, and the English newspaper devoted columns to the news. In the following month there was fog in England, and in Manchester and Salford the number of deaths

from respiratory diseases was 455 in excess of the previous month. This was not unprecedented, and hardly anyone noticed it. The cause of the Belgium tragedy was uncertain, and it was therefore news. The cause of the deaths in Manchester and Salford was not uncertain. The same thing has been happening for generations ; it is a habit and is thus of little interest to the public.

These reflections are occasioned by the sharp rise in the respiratory diseases deaths that accompanied the severe fogs in London during November last, of which particulars are published on another page. They are serious and remediable but they are ignored because they have happened before and because they are regarded as natural deaths, just as the smoke which causes them is still looked upon by many as a natural constituent of the atmosphere.



This number of the *Journal* is very largely devoted to aspects of the domestic smoke nuisance. There is an article which deals fully with developments of the use of gas in the home, which is complementary to the article on electricity that appeared in the last issue. A housewife contributes an account of her personal experiences and compares her own modern smokeless home with a house in which raw coal is used. And lastly, the report of the White Gate estate, at Chadderton, indicates what can, and ought to be done in making smokeless homes standard in all new housing schemes. The difficulties that faced the householder in his attempts to achieve smokelessness with convenience and economy are now being rapidly overcome, and smokelessness is actually being obtained as a result of demanding convenience and economy.

The London and North-Eastern Railway is reported to be planning to make its stations more beautiful and cheerful by the use of brighter colour schemes. We heartily approve of this, but cannot help wondering how long the smoke from their locomotives will allow the colours to remain clean and bright. The smoke from railway locomotives has received little general attention for a long time, but it cannot be denied that it is frequently excessive and that it is often a source of annoyance to passengers and a decided nuisance to people who live near a railway line. The public will appreciate brighter stations, but they would appreciate cleaner travelling even more. The increase in passengers that is generally noted when a suburban line is electrified is not merely on account of speed and comfort; it permits the passenger to open the windows without being smothered in soot and grit, it means cleaner and pleasanter travelling, and, by removing the source of dirt, makes the stations themselves far more agreeable places. We know the difficulties with which the railways have to contend, and do not doubt that they would like to see smoke completely abolished on their systems. But are the companies sure that they

are preventing all smoke except that which may be quite unavoidable? Do they not agree that a "smoke reduction campaign" would not only help to keep the stations colourful, but would promote even more public goodwill and approval than the brighter stations themselves? May we not hope that some day we may be told, on one of those attractive posters, that "It's cleaner by Rail"?

Now that the country is extricating itself from the financial slough into which it fell three years ago, it is possible for the Society to take the steps that have long been desirable to augment its income. The present income allows us to organize ourselves effectively and to carry out a useful, if inadequate, amount of work. It is, in fact, just enough to allow us to realize what strides we could take if only we had the money. Or, to change the metaphor, we think we have at last got the top spinning and that it will go on spinning satisfactorily for a long time. But we haven't yet got the power to make it hum. With five times our present annual income we believe we could make things hum in the way that we wish. We cannot, of course, ask our present members, to whom we are most grateful for their existing support, to help us to do this, even though we should like any who feel they can, to consider it. It means seeking new members and subscribers, and to begin with an appeal is to be made to the many Local Authorities who are not affiliated to the Society. Our work is one that will benefit the community generally, and should thus be the concern of those who are directly responsible for the welfare of the community.

The *News Chronicle* each day awards a half-guinea to the sender of the best letter to appear in its correspondence columns. On January 10th, this went to the sender of an excellent short letter on the importance of smoke abatement. The writer was not a member of the Society—except in spirit—but we wish that our members would do the same thing and try their hands at occasionally writing a topical letter to their paper. If it is "newsy" it has a good chance of being published, especially in the local press. Unfortunately there are not many half guineas available.



# SMOKE ABATEMENT AND COMMERCIAL INTERESTS

## THE POSITION OF THE N.S.A.S.

The supply of milk to school children, one would think, must meet with the approval of all, but it appears that it is opposed by small shopkeepers and the manufacturers of the sweets upon which children have hitherto squandered their halfpence. On the other hand, a development like the institution of "Belisha Beacons" must be highly gratifying to the fortunate firms given the job of manufacturing the striped poles and the orange globes. We read, too, that the habit of shaving oneself is spreading to the Balkans, and that the barbers are demanding a prohibition of the importation of safety-razors.

It will be found that nearly every change or reform of any magnitude has its own economic consequences, and is of pecuniary benefit to some or of injury to others, and is therefore likely to be supported or opposed on grounds apart from its true merits. What are known as "vested interests" enter into the campaign on behalf of, or against, the reform, and through long associations this term has acquired a slightly sinister meaning.

Of all the reforms that can be imagined at the present time none can be more directly the concern of commercial interests than the one which is seeking to bring about radical changes in the use of fuel for the purpose of securing an unpolluted atmosphere. The smoke problem arose as a result of the commercial distribution of a fuel, which was burned in commercially-supplied appliances, and very largely for purely commercial purposes. It is purely a by-product of commercial transactions. The smoke abatement movement, on the other hand, began without any commercial implications, and was simply a desire to prevent the pollution of the atmosphere and all that results from this. In principle, the smoke abatement movement does not care what kind of fuel is used, or even whether smoke is evolved or not—so long as the smoke is not allowed to leave the chimney and enter the atmosphere, which in effect is a public place. We could not object to any one making smoke if he would undertake to keep it entirely to himself. But, as no one can do this, it is necessary for the smoke abatement movement to pay attention to the fuel used, to the way it is used, and to the appliances in which it is used. There is no interference with any individual rights in meddling with these things, for the persons concerned are already guilty of interfering with the rights of the whole community.

The smoke abatement movement, to be successful, must therefore attend to the fire at the bottom of the chimney rather than the smoke issuing from the top. The only way of abolishing the smoke is to abolish whatever may be causing it.

One part of our work is naturally to stress the consequences of smoke in order to show the necessity of smoke abatement, and the other part is, inevitably, to advocate smokeless methods of fuel utilisation. This means that we cannot avoid supporting or opposing the commercial interests concerned.

### Not an Advertising Agency.

This necessity at once puts the movement in danger of unfair criticism, for it may easily appear to the uninformed that it is working on behalf of these particular industries, and that "smoke abatement" may, indeed, be little more than a kind of advertising agency for them. For a long time, because of this danger, policy forbade the acceptance of subscriptions or other support from these interests. Finally, however, it was seen that it was justifiable for us to accept such support, provided that it did not also entail the acceptance of any form of control, and provided that care was exercised in maintaining impartiality as between one and another of the smokeless agents that it was desirable to recommend.

The National Smoke Abatement Society is thus able to advocate the use of gas, electricity, oil, anthracite, and the several prepared smokeless solid fuels without favour to any, and has also avoided the danger of appearing to be the servant of any of these industries. It can be emphatically stated that all the Society demands is that fuels or methods should be smokeless, and then, for any particular requirement, it will urge the use of what appears to be the most suitable, irrespective of any other consideration.

It may be added that the firms and associations which have supported our work have fully understood this position, and do not seek in any way to influence our propaganda or policy for their own ends. They are aware that their support is simply used for the purposes of making known the special advantages of smoke abatement and not the general advantages of their own products.

We can, therefore, truthfully say that the National Smoke Abatement Society is completely independent of commercial interests, and that the various firms and associations which believe that it is to their ultimate advantage to assist our work do so in the knowledge that their help does not entitle them to control the Society in any way. The relations between these subscribers and the Society are friendly but, wisely, not too intimate.

### The Opposition.

So much for the interests which look upon smoke abatement with favour. There is, however, a considerable amount of visible and latent opposition from other



# WARMTH WITHOUT SMOKE

COAL, COKE, GAS, OIL or 'ELECTRICITY'?

CONSULT

## SAUNDERS & TAYLOR LTD.

Warming, Ventilating and General Engineers

Praed Rd. Trafford Park,  
MANCHESTER

Telephone TRA 2007

11 Dyers' Buildings,  
HOLBORN,  
LONDON, E.C. 1.

Telephone Holborn 9931

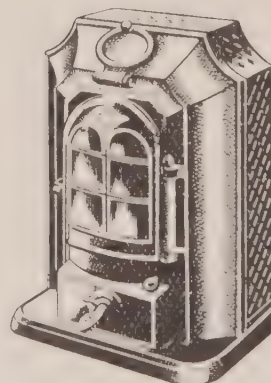
**Anthracite is Smokeless and gives  
maximum Economy with these  
Appliances**



This wonderful cooker saves you 80% in fuel costs! Big cooking capacity — better cooking — no trouble — three large ovens — no daily lighting.

Licensed under  
British Patents  
Nos. 205071  
and 332444.

British Patents  
Nos. 370680;  
390119; 390674  
390749; 394177



Ensure healthy  
warmth always.  
No daily lighting.  
Continuous, safe  
heat. CHEAPEST  
in fuel cost.



**ESSE**  
PATENT STOVES

**SMITH & WELLSTOOD LTD.,** Bonnybridge, Scotland

Showrooms at 11, Ludgate Circus, LONDON E.C. 4. and at LIVERPOOL, EDINBURGH and GLASGOW



interests which depend for their prosperity upon the production or sale of the fuel that produces the smoke. This, fortunately, is not as extensive as it might be, for if fuel of any kind is burned without smoke emission the Society is no longer concerned with what it is. Coal can be so burned in most industrial operations, and our task in this direction is only to ensure that this is done. The smokeless combustion of coal is one of the results of attention to fuel economy and does not provoke opposition from anyone, except, perhaps, the short-sighted manufacturer who thinks that a clean chimney is expensive and that smoke shows he is busy. On the industrial side the Society differs only in emphasis if at all, from the Federation of British Industries, the Coal Utilisation Council, or any other authoritative body.

It is really only where the domestic uses of coal are concerned that the smoke abatement movement finds opposition. Many coal merchants foresee the disappearance of their household coal trade, and are not only opposed to gas and electricity, but are suspicious of the smokeless solid fuels, forgetful that they themselves, may, in time, deal profitably in such fuels in place of the raw coal they now sell. The Coal Utilisation Council is more broadminded than this, and seeks to encourage the use of modern appliances that both burn less coal and burn it with less smoke. The Council, however, prefers the use of raw coal to the use of pretreated coal, and disagrees with the Society's condemnation of the use of raw coal for domestic purposes. The Society will agree that where raw coal is still used it should be used in the most modern appliances, but prefers that it should not be used at all. Half a loaf is better than no bread, but the whole loaf is best.

It is perhaps idle to protest against the general opposition to smokeless fuels that exists in many sections

of the coal trade, and it is equally idle to protest against the propaganda for the coal fire that is carried on. That is what is to be expected when a reform comes up against commercial interests, and it may even be increased as the smoke abatement movement progresses.

The ultimate benefits to the mining industry and its dependent industries are likely to be considerable, and experience has shown that developments of the kind that are needed for complete smoke abatement are, in the long run, of advantage to all. There can be no doubt that the nation as a whole will benefit economically by the coming revolution in our methods of heating. The only trade that will disappear as a result of these changes is that of chimney-sweeping. And this, it must be agreed, is an unpleasant and primitive occupation that belongs to the smoky past and not to the cleaner future.

Some readers may wonder why their attention has been drawn, through this article, to the question of the connection between smoke abatement and commercial interests. It is not written as a comment on any specific discussion or occurrence, but simply because it was thought that it would be useful to state the Society's views on its unavoidable alliance with these interests. The Society looks upon its mission as wholly altruistic, and before anything else as a work for the health, well-being, and amenities of the community. It is as well to take an occasional opportunity of stressing this and of explaining exactly where we stand in the world of production and distribution, of profits and dividends, with which we must necessarily have frequent contact. It is a position that calls for fairness and care, and sometimes for diplomacy, but we have the satisfaction of knowing that we can go on with our work with an easy conscience.

---

## RECENT FOGS IN LONDON

### MARKED INCREASE IN RESPIRATORY DISEASES

Foggy weather was experienced throughout the country during November last, but the fog was heaviest and most prolonged in and around London. Each of the four weeks, from that ended November 10th, to that ended December 1st, are scheduled as foggy, and during this period the respiratory diseases death rate shows a steady increase from the figure recorded for the week prior to the beginning of the foggy weather.

This is what customarily happens, and the figures reveal, in themselves, little that is new. They are important, however, because they are the most recent available and because they demonstrate most clearly the fact that temperature is a much less important factor than the smoke-impregnated fog.

The details are as follows :—

Week-ended	Weather	Average Mean Temperature (°F.)	Respiratory Diseases Deaths
Nov. 3rd.	No fog.	43.2	49
Nov. 10th.	Fog.	43.9	71
Nov. 17th.	Fog.	45.1	81
Nov. 24th.	Fog.	43.4	115
Dec. 1st	Fog.	49.3	121

The steady increase in the deaths each week is doubtless due to the delayed effects of the first weeks, plus the more immediate effects. It will be noted that the temperature during the first week is 6.1°F. lower than during the last week, but that there are 72



# RADIANT - PANEL

## Gas Heaters

provide a clean, healthy and stimulating heat for Home, Office, Hotel or Shop. They are readily installed in a convenient situation and consume a minimum amount of gas. Flues are not necessary.

### "MODERNE" Model (illustrated)

is available in several charming finishes at prices from

**£ 4 - 15 - 0**

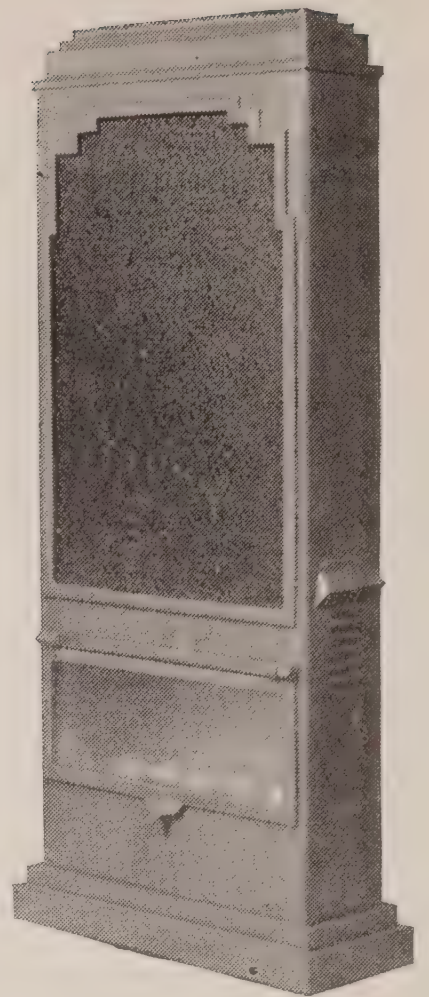
*The Heaters are available also in Dwarf, Elevated & Built-in patterns.  
Ask for list in colours, giving full particulars, capacities and prices.*

**SIDNEY FLAVEL & COMPANY LIMITED**

Stovemakers since 1777. **328, THE FOUNDRIES, LEAMINGTON**



In London, RADIANT - PANEL Gas Heaters may be seen at work in their various forms and finishes, at the Welbeck Street Fireplace Galleries, 38 Welbeck Street, W. 1, a permanent exhibition of selected fireplaces and stoves totalling more than one hundred. You are cordially invited to inspect the Galleries at your leisure and will not be importuned to make purchases



## THE JOURNAL OF THE NATIONAL SMOKE ABATEMENT SOCIETY

is undoubtedly the ideal medium in which to advertise Smokeless Fuels and every appliance or device for minimising or abolishing the smoke nuisance. The advertisement rate is very moderate, while advertisers are assured of **every copy** of the Journal reaching the people who are working for this great modern reform. Smoke Abatement is not a theory ; it is not merely hygienic propaganda. **It is a step forward in the life of the nation.** The movement is making wonderful progress ; it is overcoming all old-fashioned prejudices. Its advance is irresistible. Every engineering firm which produces smoke-abating appliances, and every maker of smokeless fuels, should openly associate themselves with this great national reform, by advertising their products in the **only** National Journal devoted to Smoke Abatement.

Enquiries as to advertisement space should be addressed to the publishers :

**THE SERVICE GUILD LTD.**

**49, Deansgate, MANCHESTER, 3.**

Telephone : BLACKFRIARS 3313.



more deaths during the last week than during the first, fogless, week. This is thus a valuable example of the effects of smoke-fog disassociated from the effects of extremely cold weather. There is no doubt that abnormally low temperatures would have their effect in increasing the death rate, but this factor clearly does not enter into the present figures. Actually, the daily minimum reading only falls to freezing point (32°F.) on October 31st, November 1st, and November 8th, and on no occasion during the five weeks does the maximum reading come below 40°F.

If we assume that except for the smoke fog the weekly

average of 49 deaths for the pre-fog week would have been maintained during the following (warmer) weeks, it follows that the excess of deaths during the period totals 192.

It is impossible to estimate what amount of illness, suffering, and acute discomfort was also induced by the noxious air that all Londoners had to breathe during that month, and it is even impossible to imagine it. Perhaps the doctors' case books and the prescription books at the chemists' shops would give a slight idea of its enormity.

---

# FROM COAL FIRES TO CLEANLINESS

## A PERSONAL OPINION

*Dr. E. W. Smith, in summing up the papers and discussions at the Society's Symposium on Smokeless Open-grate Fuels in June last, said that in thirty years time the question of labour-saving would have become the most important of all. "The outlook of young people," continued Dr. Smith, "is different from that of the older generation, and they do not care for open fires like the older people. They try to eliminate all that goes with housekeeping. The girl of to-day is not keen on domestic life, and as the woman of to-morrow she will only have the best in labour-saving. This means that the future will lie with either gas or electricity."*

*This statement is aptly confirmed by the following impressions we have received from a contributor who, as will be seen, is a housewife of the younger generation. The effects of smoke apart, it is clear that the fires and methods that produce smoke are already being looked up as anachronistic, and will not be tolerated in the more rational and efficient era that we are approaching.*

The kettle was heavy and black. It always stood on the hob and had accumulated layers of soot on the bottom and sides. Lifting it was a work of art if one wished to keep one's fingers clean and unburnt.

As I filled it up with water for tea I thought of my gleaming aluminium kettle at home, which went quite happily on the fire or the gas cooker and retained its brightness. My knuckles touched the back of the grate as I wedged the sooty kettle on the lumps of flaming coal, and there, on each finger was a thick black smudge. A ring came at the door, and I went to answer it, quite forgetting that my hand was sooty. Later I found that I had decorated my face with soot in pushing back a lock of hair that had fallen forward.

Since rising that morning I seemed to have been waging a losing battle with soot. I was back in my old home spending Christmas with my parents, and the contrast of my own home with its modern heating methods with the old-fashioned methods used in the

house where I had spent all my life up to the time of my marriage, made me realize not for the first time, but more forcibly, the tremendous amount of work that coal fires cause.

Before I left home, lighting fires sometimes fell to my lot. At first I accepted the business of laying paper and wood or firelighters, and then carefully selected pieces of coal which were lifted with the tongs if I was in a fastidious mood, or put on with my fingers if I didn't care how dirty I became.

This process was usually gone through more than once, as I was unlucky or perhaps unskilful in lighting fires, and the wind never seemed in the right direction to "draw" when it was my turn to get the fire going.

There were no boys in my family, and I remember how terribly heavy the scufflefuls of coal felt as I used to lug them up the cellar steps. It was a dirty business altogether, but the dirtiest job of all was flue cleaning. Fortunately, I had not to do this disagreeable task, but the poor old charwoman who tried her best to bring down the soot from the labyrinths behind the stove used to get incredibly grimy. Her thin arms would be black to the elbows, and she never managed to keep the soot from tracing dreary lines of black down her nose and cheeks. When I was younger I thought all this was inevitable—inevitable also that little "pothooks" should sail about the room on gusty nights.

Every spring came the rite of chimney sweeping. Furniture was draped with white sheets. Newspapers covered the carpets. We all had to rise early to get breakfast over before the sweep came. Afterwards the soot was deposited in a pile at the bottom of the garden to be subsequently dug in round the roots of plants as a fertilizer—but the family dog always walked into it first and brought it back in little black paw marks all over the house. Soot, soot, soot—sometimes it came down the chimney of its own accord, filling the fireplace and covering everything with a black film. It was a



# **YOU can help to solve the smoke problem!**

Gas Coke *cannot* make smoke or smuts; it costs less and gives out more heat than ordinary solid fuel. It is the *ideal* fuel for Open Fires, Kitchen Ranges and Domestic Boilers.

Ask your Gas Company about the new Open Coke Fires which light without wood or paper, burn without smoke or soot and give a cheerful blaze. Or write for a free illustrated descriptive Brochure, post free from:—

**THE LONDON & COUNTIES  
COKE ASSOCIATION,  
9 GROSVENOR GARDENS, LONDON, S.W.1**

(L.29)





nuisance, but to my parents and most of their generation nothing more than a perfectly natural nuisance like too much rain. It was there and had to be put up with. It was certainly nothing that could be actively fought and overcome.

### New Methods.

Then when I was about to be married I had to decide on the type of grate to choose for my own house. The thought of having to deal with coal every day was appalling. I considered gas, electricity, and central heating. The last was not possible as we had to take a house already built. Gas or electricity for continual use worked out more than I knew my household budget would be able to afford.

I obtained samples of smokeless fuels and tried them out in my mother's grates. Coke I found burnt perfectly in her kitchen grate, producing quantities of really hot water. It would not heat the oven, but this did not matter as she had started to use a gas oven for baking. Coke did not burn so well on the grates in the house, as these had very close bottom bars which prevented sufficient draught. Other smokeless fuels burnt well but would have given even better results with a more modern type of grate.

Lighting the fire was still a difficulty. Coke would not ignite with sticks and paper, and I found I had to use coal to start the fire. This unpleasant business I was determined to avoid if at all possible, and the discovery of a gas ignition poker in use in a friend's house solved the problem, although I couldn't persuade my parents to have gas points installed. They tolerated my experiments, and although eventually they admitted that smokeless fuels were cleaner and cheaper, they continued, and still continue, to use the dirty methods.

The little effort necessary to ensure bright, smokeless fires is too much "bother." Special grates with gas ignition cost very little, but they make an amazing difference to the burning of any kind of fuel and entirely obviate the bugbear of fire lighting.

Almost all the furnishings in my home are bright in colour. Parental voices prophesied dinginess in a very short time. My husband and I wanted bright rooms, we did not want "colour that won't show the dirt." If there had to be dirt it had better show and be got rid of. In the room which is in continual use we have a light fawn carpet and a light rug before the fire. I am perfectly certain that such a rug would not stay clean a week before a coal fire, and yet, although occasionally coke has been spilled on ours, it still looks fresh and bright, and almost as clean as when it was first bought.

My friends and neighbours are always complaining about the soot which comes in through opened windows and which descends on to their clean washing hanging in their gardens. They seem to think that the cause is something entirely unrelated to themselves in spite of the fact that they live in a residential district surrounded by fields and miles away from any factory chimneys.

A glance at the tops of the chimneys of my house and of others near it is illuminating. All other chimney tops are blackened, but not a trace of discolouration shows on mine. Even one smoking chimney can emit countless particles of soot into the air. These blow about through the windows of nearby houses, on to flowers in the gardens, and on to clean clothes drying on lines.

If only everyone would make that slight effort necessary to end all this dirt and all this pollution of the air, what a difference it would make to the housewife.

---

## GAS FOR DOMESTIC HEATING

### A REVIEW OF RECENT DEVELOPMENTS

During recent years gas as a perfect means for domestic heating has come very much to the fore. Among the reasons for this advancement, reliability, ease of control, cleanliness and absence of smoke might take precedence. Once gas is installed the supply is not likely to fail owing to climatic or technical reasons, nor will the fuel run short, because someone forgot to re-order it. It is literally "on tap" since it can be regulated, either by turning a tap, or in the case of most appliances, by automatic control, from a trickle of warmth to a fierce heat.

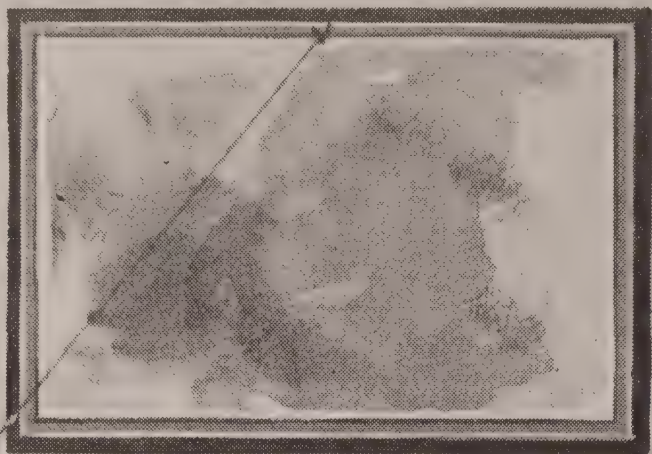
It is brought not only to the door, but right to the point required, without once being handled, nor does it add one iota of grime, dust or smoke to the atmosphere, an aspect that has not been overlooked by medical men when recommending the healthiness of gas heating.

#### Central Heating for the Large House.

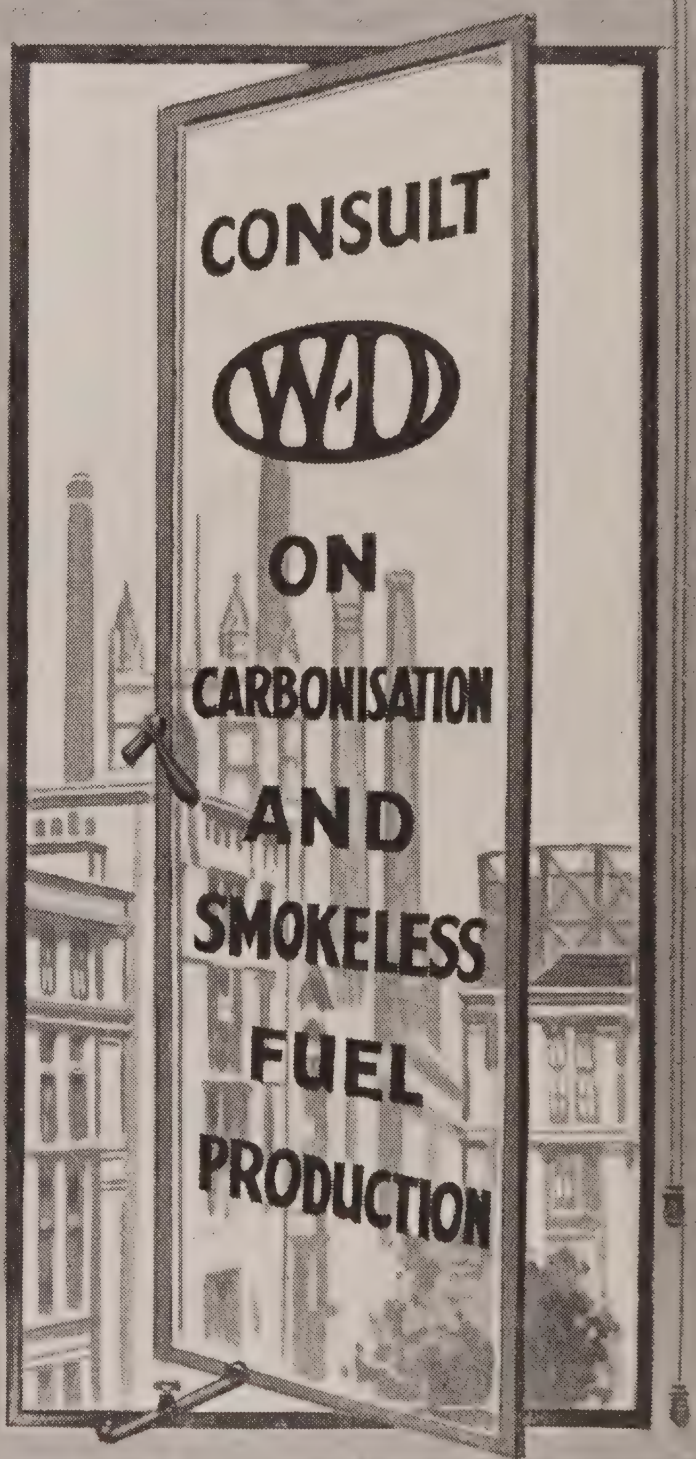
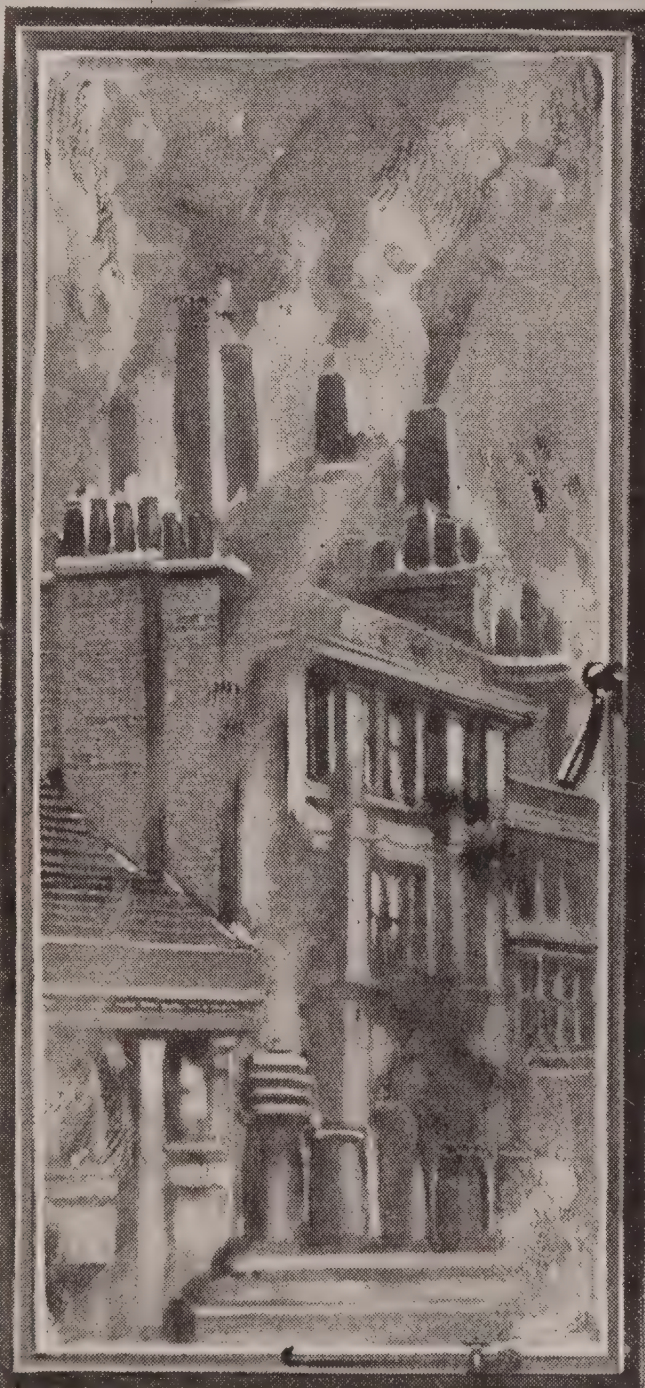
Most of the homes of to-day have some form of central heating that will ensure the maintenance of a general degree of warmth throughout the house.

For large houses the ideal system takes the form of a number of low temperature radiators, supplied by a gas-fired, thermostatically controlled boiler, together with gas fires in living and bedrooms. The gas-fired boiler is particularly suited to the home where storage space is precious for it occupies less room than plant fired by any other fuel. It requires no supplies close to it from which it must be stoked, thus eliminating the need for a storage space for fuel. It is so clean that it can safely be installed in any suitable alcove or corner.





**OUR IDEAL—  
A SMOKELESS  
CITY**



THE WOODALL-DUCKHAM VERTICAL RETORT & OVEN  
CONSTRUCTION COMPANY (1920) LIMITED  
EBURY & ALLINGTON HOUSES, 136-150 VICTORIA ST., LONDON, S.W.1





The lattice-work radiants of this modern gas fire give it a novel and dignified appearance. It is silent in action, and the surround can be finished in one of a range of pleasant colours.

One radiator in the hall, one on each landing, one in the garage, and one each in the kitchen and bathroom are a reasonable number to run from quite a small boiler. Others may be added to supplement the warmth of the gas fires in the living rooms, if these are very spacious.

Once the plant is started it can be left without further attention, since by means of a lever on a graduated dial, the thermostat can be set to ensure an even temperature of any desired degree from  $100^{\circ}$  to  $180^{\circ}$  Fahr. Pipes may be carefully lagged from the boiler to the point where the radiators are connected, or, if additional warmth is required, as in a passage or airing cupboard, the pipes may be left unlagged without material loss of warmth.

Besides the more general thermostatically controlled dial adjustment, there are also two other systems :

- (1) The One-Point Air Control, and
- (2) The Multi-Point Control.

With the first a variable air thermostat operated by the air temperature in one of the rooms controls the gas supply to the boiler, and thus, indirectly, the temperature in all the rooms served by the central heating system. In the second system, a variable air thermostat is fixed in each principal room and operates a magnetic valve which controls the flow of hot water

through the radiators in the room, thus regulating the temperature. Different rooms can have different temperatures in accordance with the wishes of the occupant.

With this type of installation a water temperature control thermostat is fixed on the boiler to keep the gas consumption proportionate to the actual amount of heat required throughout the house.

This brief survey of accurate temperature control in gas-fired central heating systems shows the extreme mobility of gas as a means of producing warmth when it is needed, as opposed to the old system of solid fuel-fired boilers, that must be either kept going full swing, or allowed to die out, without the happy mean so very necessary in our climate.

### The Independent Gas Radiator.

For the smaller house, a number of gas-fired independent radiators is an idea that should appeal, since the radiators take little space, are inexpensive to run and, for the most part, need no flues. They will keep halls, landings and passages comfortably warm. These appliances, as the name implies, can be lighted by means of the burner underneath, in exactly the same manner as the ordinary gas fire, and also in the same way, be turned down lower if the temperature is found sufficiently high.



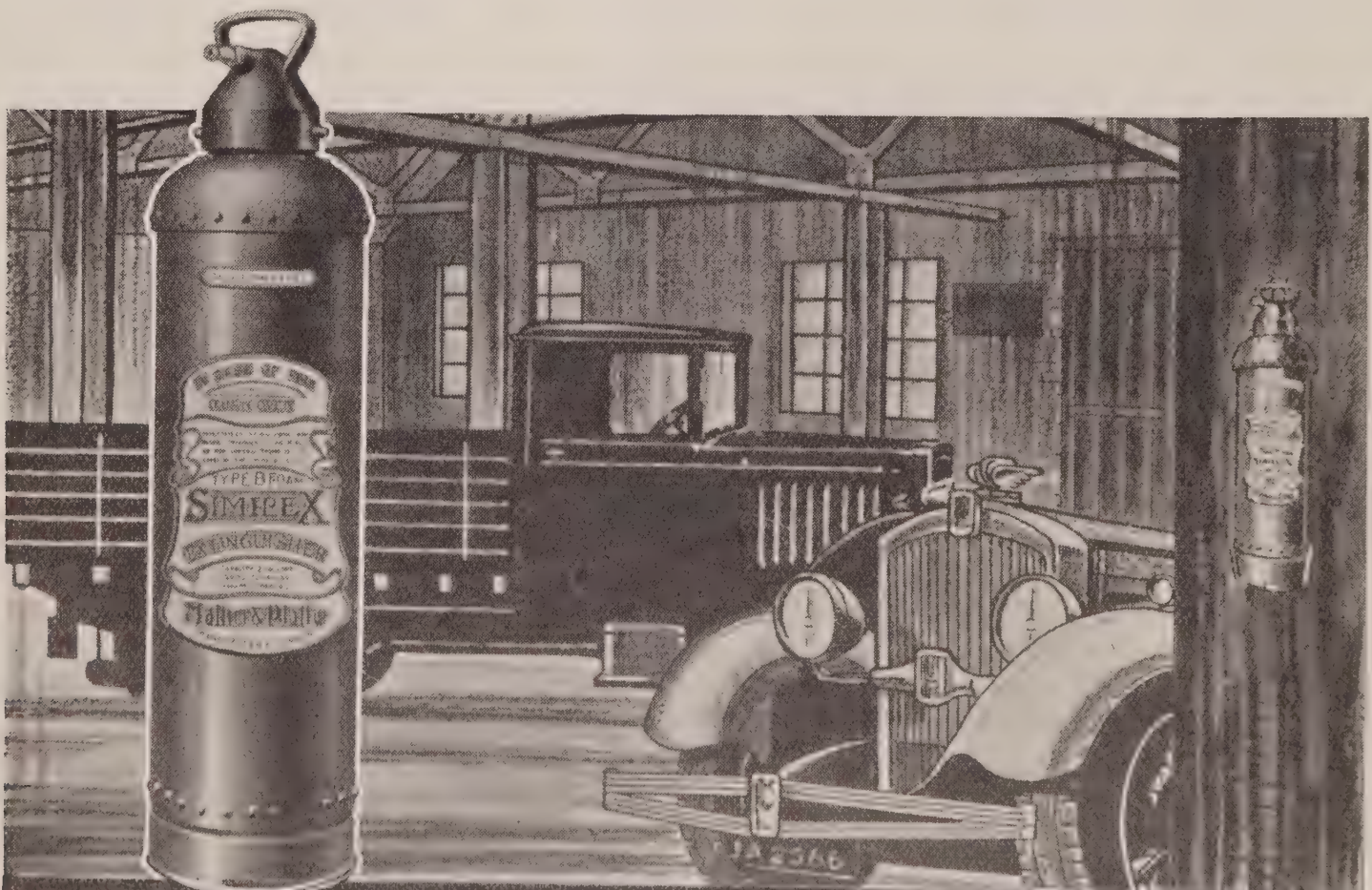
# SIMPLEX

## EXTINGUISHERS

### SODA ACID and FOAM TYPE

“Simplex” Extinguishers, approved by all Insurance Companies, combine maximum efficiency with simplicity in operation and unfailing reliability with lowest cost. They are made in a wide range of colours to harmonise with any decorative scheme.

A catalogue printed in natural colours will be sent on application.

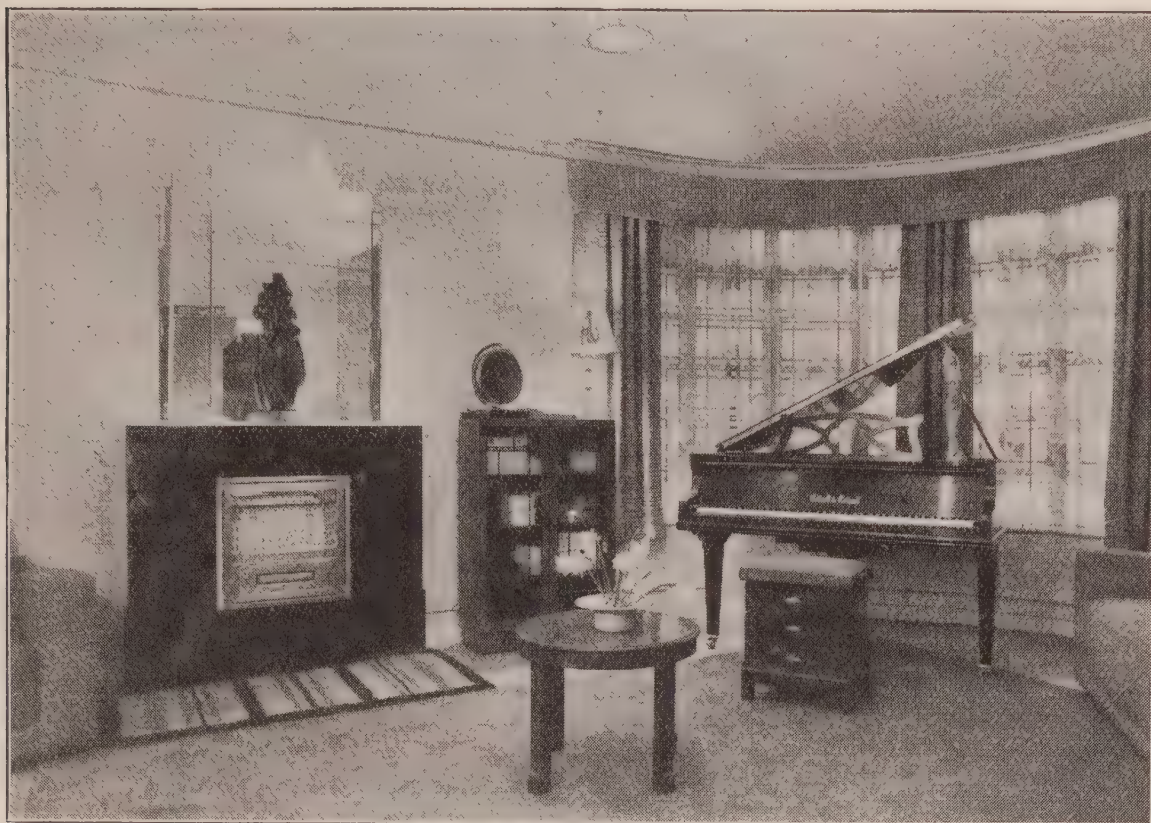


# Mather & Platt Ltd

• PARK WORKS, MANCHESTER 10. •  
PARK HOUSE, CT. SMITH ST. LONDON S.W.1.

MP 186





The panel gas fire, removing the necessity for the usual hearth, saves building costs and adds to the appearance of the room in which it is fitted.

During recent years there have been a number of new designs placed on the market suitable to all needs. One type of radiator or hall heater is so arranged that it not only provides heat, but thoroughly ventilates as well. It is intended to be fixed on the outer wall of the hall, and by means of an air brick, communication with the outside air is made through the wall, to the base of the heater. The radiator is fitted with luminous burners which are governed to a rate of eight cubic feet of gas per hour, and are fitted behind a translucent panel which gives a warm and cheerful appearance, very different to the deadness of the ancient type of iron radiator.

A cabinet-shaped model with a cheerful reflector beneath a panel of open-work net mesh is one that is finding much favour. Here the heating principle is based upon the introduction of specially designed refractory bricks over luminous flames. The maximum heating efficiency has been obtained, while high temperature convecting surfaces have been eliminated.

A panel heater suitable for fitting in a small space under a window for instance, and particularly adaptable to the compact modern house is very efficient when it comes to a question of warmth. The smallest size in this model is 26 in. high, 15½ in. wide, and with a projection of only 6 in.

Another type of simple and attractive design is that of the narrow column, at the base of which are luminous burners behind orange glass windows. The usual finish of these radiators is in bronze, which tones with the orange-coloured panel, and also is easy to fit into decorative schemes. The small hall would be adequately warmed by a single unit, but if this model is chosen for use in a large space, twin or treble columns can be fitted. If preferred, this make can include a

convenient boiling burner concealed in the flat hinged top, so that the radiator can serve a double purpose.

A gas-fired radiator of the panel type has been specially designed for use in the garage during the winter. It is thermostatically controlled and can be left burning all night long without attention and with perfect safety. The panel may hang high on the wall, or be placed at ground level, according to inclination or available space. The position, with regard to the car, does not matter, since the radiator may be run close up to the panel without the slightest danger, since it is claimed that the radiator has the safety of a Davey lamp, and that no fumes from the engine could possibly affect the heater.

### Developments in Modern Gas Fires.

The convenience and labour-saving qualities of gas fires for domestic heating have long been well-known, but there have been enormous improvements both in appearance and performance during the last few years.

The latest gas fires are claimed to be rich in the infra-red rays of the sun's spectrum, and are recommended by many doctors as actually beneficial to health. This opinion is amply backed up by the fact that, as has been shown by a recent investigation, three out of every four doctors are themselves using gas fires, not only in their waiting rooms and surgeries for the sake of convenience, but also in their homes. It has been estimated that the medical profession accounts for the use of over 100,000 gas fires in Great Britain.

A gas fire has the added advantage over other means of heating, that, in conjunction with a flue, it forms an excellent ventilating system, as normally it will have the effect of changing the air in a room three or



# BETTER, HOTTER AND CLEANER FIRES

---

Smoke abatement does not mean that open fires must be abolished. The use of the open fireplace in this country ensures well warmed and ventilated rooms at a cost much below that of any other system of heating.

**"COALITE"** is the best fuel obtainable for the open fireplace. It is a smokeless fuel made from the best British coal. Only clean washed coal is used so that the ash content is reduced to the lowest possible figure. In the manufacture of **"COALITE"** the soot and smoke producing constituents of the coal are eliminated, leaving a highly efficient radiant smokeless fuel.

**"COALITE"** gives the maximum useful heat with the minimum loss.

**"COALITE"** lights easily with paper and wood and quickly gives a clean, hot and cheerful fire in any type of open grate, kitchen range and closed stove. **"COALITE"** is the fuel for all purposes as it requires no special grate nor excessive draught or gas jets to assist lighting up or combustion.

**"COALITE"** is an economical fuel, though its price may appear somewhat higher than that of raw coal. An independent test for consumption and heat in an ordinary open fireplace carried out from November, 1931, to April, 1932, under normal practical conditions, showed that one ton of **"COALITE"** went as far as  $27\frac{1}{2}$  cwts. of best coal and gave equal heating.

A saving of 37% in the amount of fuel used was therefore effected and thus, in spite of its somewhat higher cost per ton, **"COALITE"** is cheaper in use than ordinary coal and provides cleaner, better and brighter fires.

## **"COALITE"**

---

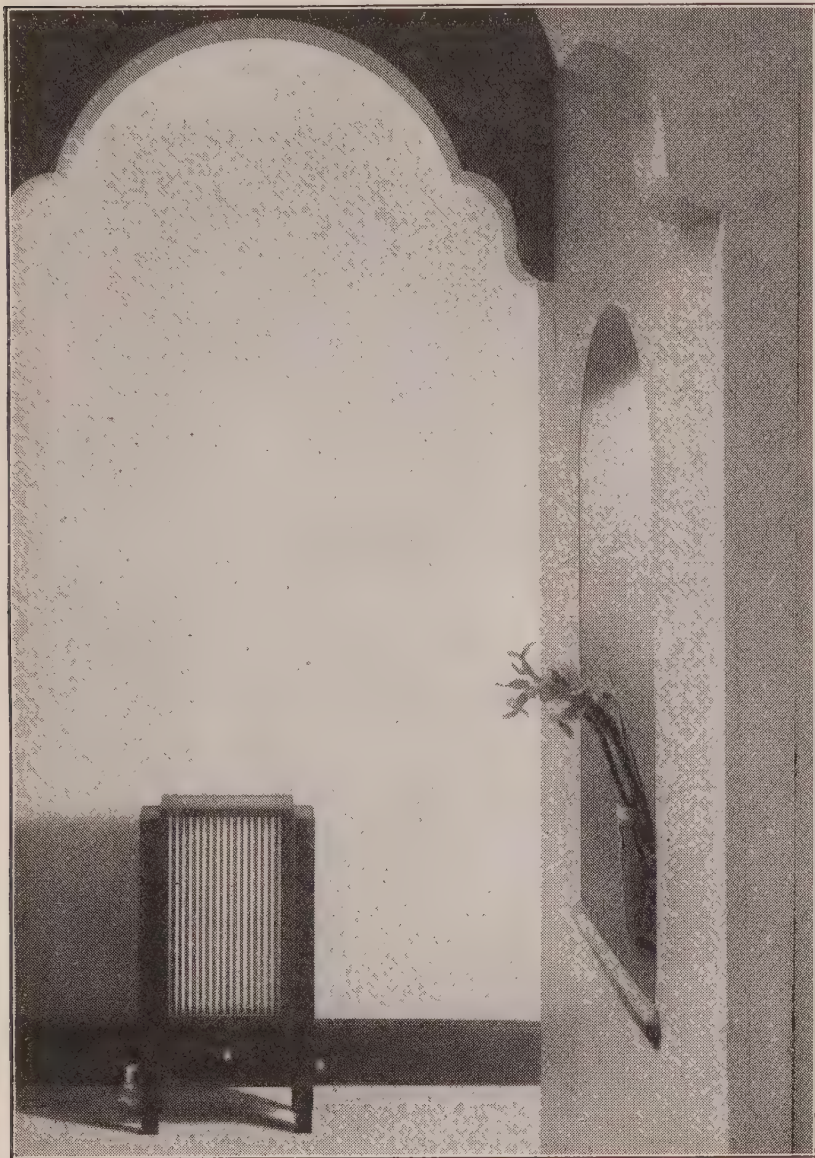
*(Regd. Trade Mark)*

*Supplies are obtainable from all leading Fuel Merchants. If any difficulty is experienced please communicate with the Company :*

**LOW TEMPERATURE CARBONISATION LTD.**  
28 GROSVENOR PLACE, LONDON, S.W.1

Telephone SLOANE 9274





Gas radiator, heated by burners at the bottom of of the appliance, are useful means of warming halls and landings. There are several designs from which to choose.

four times an hour. There is no monotony to-day in the appearance of gas fires, for both finishings and the fires themselves are extremely varied.

Radiants, besides being upright, can now be arranged in convex formation, or inclined at an angle. Either of the two latter arrangements will give a wide area of radiation. One new make of fire has novel "radiants" known as "units". Each unit is like a rectangular piece of lattice work, and a fire may consist of two, three or four units arranged against a back of special fire-clay that has air spaces behind to prevent loss of heat. Each unit is equivalent in heat value to  $2\frac{3}{4}$  ordinary radiants.

Fires, charming enough to fit into any scheme of room decoration, are easy to find. The fire itself can be finished in antique brass, copper or pewter, in a range of heat resisting coloured enamels or in stainless steel. The surrounds, used either in conjunction with panel fires, or as a means of linking the new gas fire with the existing grate, may be of similar materials, or consist of imitation marble, marble, slate, glass or coloured mirror.

### Getting Away from the Hearth.

Where modern decoration demands something specially neat in appearance, the panel gas fire is a

safe choice. This make of fire, fitted either with upright candle radiants or the "units" described above, can be fitted perfectly flush with the wall, at any required height from the floor level. It needs neither hearth, fender or mantel-piece; consequently it is very useful in a small room where space is a consideration, although the largest size panel fire looks extremely handsome with an artistic and suitable surround, in a large room. Some models are made with hinged doors that will close like a screen and completely hide the fire if it is not wanted. Thus only a decorative panel on the wall is seen.

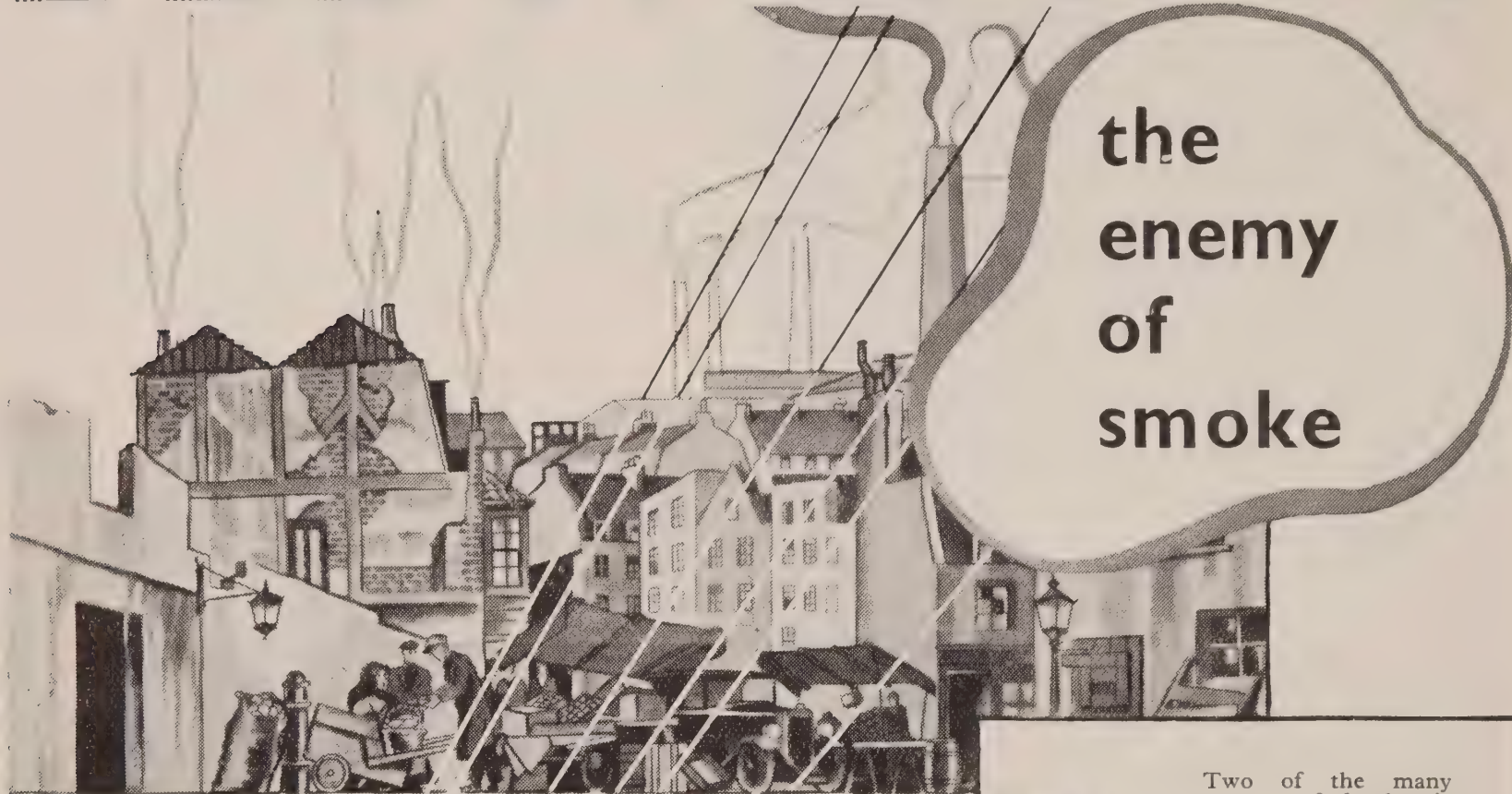
A very high percentage of radiation is obtained by yet another new gas fire. This has an extra row of short or "scrubber" radiants filling the space, usually empty, above the upright radiants. No more gas is consumed, but the whole fire front is filled with glowing warmth. Some of the latest gas fires are lighted by a mere turn of the tap, and require no matches to set them going.

### Smokeless Fires of Solid Fuel.

Some people still prefer a fire of solid fuel, and for this purpose, gas coke, smokeless and full of radiance, can be used in conjunction with one of those useful gas pokers. There are also other smokeless fuels,



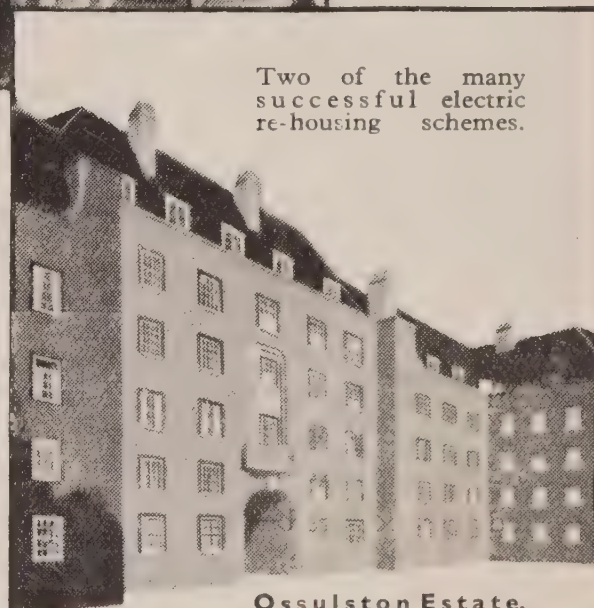
# ELECTRICITY



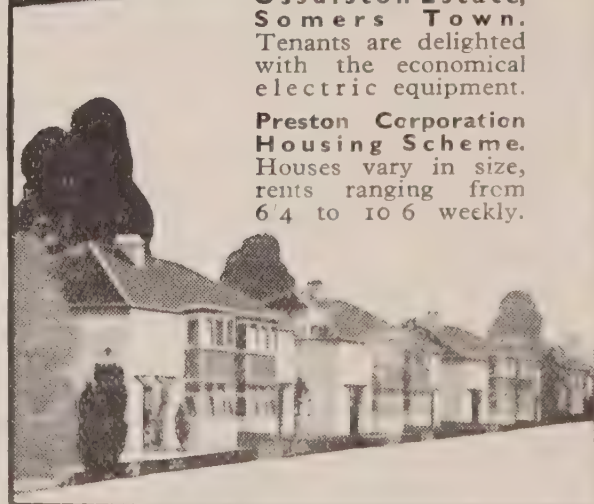
the  
enemy  
of  
smoke

Electricity is the most powerful ally of those engaged in the winning fight against the evil of smoke pollution. Electricity is the perfect, smokeless, pure source of light, heat and power. Local authorities everywhere are finding that the all-electric re-housing scheme is the most truly economical. Magnificent blocks of all-electric flats, cheerful all-electric houses, are revolutionising the living conditions of the million. The output of current has increased by over 155 per cent. in the last ten years. Users of electricity now number over six million. Current is available throughout three-quarters of the country at about three-farthings a unit. The time is near, very near, when electricity will have brought the blessings of pure air and sunlight to *everyone* in the land.

Two of the many  
successful electric  
re-housing schemes.



**Ossulston Estate,  
Somers Town.**  
Tenants are delighted  
with the economical  
electric equipment.



**Preston Corporation  
Housing Scheme.**  
Houses vary in size,  
rents ranging from  
6'4 to 10'6 weekly.

Architects, Members of Housing Committees, Engineers of Municipal Authorities and others will be interested in "Electricity and Re-housing" giving detailed particulars of above and other housing schemes. Free on request. Enquiries should be addressed to The Director and Secretary,  
**ELECTRICAL DEVELOPMENT ASSOCIATION, INC.**

2 Savoy Hill, London, W.C.2.

Telephone is Temple Bar 9434



equally good. The poker is plugged into the bayonet connection on the floor or in the skirting board, and thrust into the heart of the coke. In a short time the fire will be well alight, without any troublesome work with paper, wood or fire-lighters.

There is also the special grate that can be used either for solid fuel or gas. This "double purpose" grate can be fitted into any existing fire-place with very little trouble. A small inclined gas fire is hidden beneath a dust-proof cover, under and slightly in front of the solid fuel basket. When the room in which this fire is placed is to be used for a long period, the solid fuel is lighted by means of a gas burner under it. Should the room be needed only for an hour or two, the cover is removed and a pleasant little gas fire gives sufficient warmth.

### Some Useful Heating "Extras."

For those spots where the luxury or necessity of additional warmth is required, and where there are no available fire-places, the gas industry has produced a number of reliable portable appliances. These can be plugged in to the nearest gas point by means of a

bayonet fitting, and a length of special safety flexible tubing, so protected that it can be trodden on without interference with the gas supply.

Portable heaters are made in various sizes and shapes. There is the pyramid, the screen heater (which can be hidden behind folding doors) and the bowl heater, with copper reflector. Among the bowl reflector heaters is one which is the clinical gas lamp used in many hospitals and infirmaries. The burner is specially treated with mineral salts, which cause it to give out in a concentrated form, those infra-red rays which help to alleviate the pain of rheumatism and kindred complaints. This lamp is quite safe for home use. It may be used both to give tonic sun-heat baths during the winter and as an extra heater in the bathroom or spare room.

For the bathroom, there is a gas-heated towel rail that can be lighted by an independent gas burner in the same way as a fire. Its running cost is extremely small, and the unpleasantness of clammy towels is overcome.

---

## THE EVIDENCE

### A FOURTH SELECTION OF USEFUL STATISTICS AND PRONOUNCEMENTS

---

#### Height of the Smoke Pall.

Colonel the Master of Sempill states in the Meteorological Magazine for November, 1931, that on October 26th, he saw that the smoke over Manchester, Sheffield, Huddersfield, Leeds, etc., went up to at least 6,000 feet, and in some cases to 8,500 feet.

#### Loss of Light in New York.

It is stated that during 1929, approximately 45% of the available daylight and 100% of the sun's ultra-violet rays were excluded from the city by reason of the smoke hanging above us. These figures are presented not as estimates, but as the result of scientific measurement. (National Conference Board on Sanitation).

LOSS OF LIGHT: Tests by the U.S. Department of Agriculture show that Mount Vernon, N.Y., enjoys nine hours more daylight each month than New York City. Smoke clouds quickly shut off the light of a rising or setting sun.—*Report of Municipal Art Society of New York, 1929.*

—And in Manchester.

The measurement of light in Manchester by the potassium iodide method shows, over an eight year period, that if the light received at a suburban station is taken at 100, the light received in the city is much less, as follows:

Timperley (7 miles S.W.)	..	100
City Centre .. .. .	..	68.6
Monsall (Outer N.E.) ..	..	52.8
Holt Town (Inner N.E.) ..	..	39.1

#### Sir Oliver Lodge.

"The earth is beautiful in the extreme in places where nobody lives; but in places where people have decided that they wish to live in large numbers for social purposes, for business purposes, for conveniences of all kinds, there they have taken no precautions to keep the earth beautiful, there they have made it ugly, there they have spoilt the face of the earth."—*Sheffield Smoke Abatement Conference, 1909.*

#### The Houses of Parliament.

"The main cause of the condition of the Houses of Parliament is definitely atmospheric impurity, although it was rendered vastly more serious owing to primary faults in the stone. . . . The first stone was laid in 1840, the House of Lords occupying their chamber in 1847, and the House of Commons in 1852. Evidences of decay were discovered before the building was completed, and an expert committee inquired into the question in 1861."—*Sir Frank Baines.*

#### How Smoke Affects the Farmer.

"In a smoke infested area the grass is coarse and poor in quality, and farmers find it difficult to provide



# THE SERVICE GUILD LTD.

We Supply PROGRAMMES  
HANDBOOKS and MAGAZINES  
— FREE OF CHARGE —

*For further particulars please write to . . . . .*

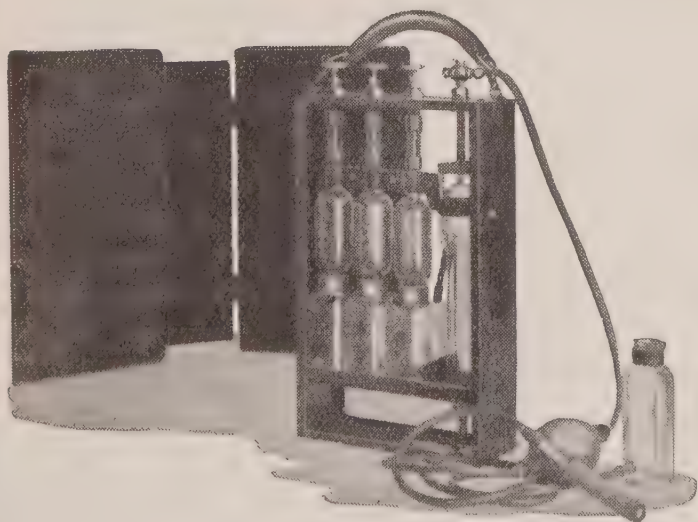
## THE SERVICE GUILD LTD.

49 DEANSGATE  
MANCHESTER, 3

TEL. BLA. 3313

*PROMPT ATTENTION GIVEN TO ALL ENQUIRIES*

**BLACK SMOKE** indicates  
incomplete combustion



HAYS PORTABLE GAS ANALYSER.

Analysing the Boiler Flue gases with the above analyser will enable you to increase the combustion efficiency and prevent black smoke.

*Full particulars from*  
**DUGUIDS LTD., LYMM, Cheshire**

## £ 50 SAVED every month

By USING

**SEOTOO**  
FLUE GAS  
CARBURETTORS  
AND "AIRKOOLD"  
GRATE BARS  
IN FURNACES OF TWO  
LANCASHIRE BOILERS

*For Particulars Apply to :*

**S MOKE P REVENTION L TD.**

**1 Victoria St., London. S.W. 1**

Telephone : VICTORIA 2671



adequate grazing for their cattle. This is a matter of considerable importance to the agriculturist. The acid present in the smoke lowers the nutritive value of the grass, with the result that the farmer is obliged to incur additional expense in the purchase of food stuffs for feeding his stock. The soil in these areas will also suffer loss of lime for the same reason, and, as the grass itself will be poor in this substance, the lime content of milk obtained from cows feeding on pasture close to large towns will tend to be lowered. Lime is essential to the well-being of young stock, and its absence in pastures near to towns accounts very largely for the difficulties in breeding sheep. Dr. Ruston has kindly sent me some very interesting notes bearing on this matter; in which he has called my attention to the high percentage of loss of lambs due to abortion in various parts of Yorkshire where the ewes were feeding on grass damaged by smoke."—*Robert W. Ascroft, Late of the Food Production Department, Board of Agriculture, in "The Conservation of the Nation's Vegetation."*

#### Smoke and the Nurseryman.

Messrs. Cowan and Co., Orchid growers and exporters

of Southgate, state that it is usual to wash the outside of their Orchid houses once a year, but they do so in addition after every period of fog. During the last winter they were compelled to do this four times, and as the work occupies the nursery hands one week each time, the cost is a consideration. The deposit on the roofs is too sticky, owing to the presence of tar, that soda has to be added to the water used for washing. Last winter, 50% of the choicest Orchid blooms fell as a result of fog. The lack of light is also very detrimental to the health of plants.—*Ibid.*

#### At Kew Gardens.

The damage done to indoor plants is most noticeable during a foggy period, one of the worst fogs experienced last winter caused practically all Orchid flowers and unopened buds to fall in less than 24 hours, whilst leaves of Begonias and other plants fell in large numbers. The bill for glass washing at Kew after a fog amounts to approximately £100.—*Dr. Hill, Director of Kew Gardens, quoted Ibid.*

---

## THE SOLID PRODUCTS OF CARBONIZATION

### AN IMPORTANT RESEARCH REPORT

---

The Chemical Department of the South Metropolitan Gas Company has published a valuable report of recent researches, entitled "The Solid Products of the Carbonization of Coal."

The researches were undertaken because, in spite of improvements, coke still remained unattractive as a domestic fuel, and it was clear that much more would need to be done before any headway could be made in the domestic market. It is pointed out that "there were two ways of attacking the problem; either the process of gas manufacture could be modified so as to produce a fuel which would burn satisfactorily in any existing type of domestic appliance, or steps might be taken to design new types of appliance, suitable for burning the coke as then produced. Each line of attack was investigated."

The first part of the report deals with an investigation into the possibility of producing by the carbonization of coal a smokeless, solid fuel, suitable for the domestic fire. Various ignition and combustibility tests were carried out, and the behaviour of cokes produced at different temperatures was determined. These experiments confirmed the fact that 700°C. is a critical point in carbonization, at which a profound alteration in the nature of the solid residues occurs. If carbonization is carried beyond this temperature, it appears that considerable changes occur in the chemical structure of the coke; there is a marked evolution of hydrogen, and the properties of the coke, considered as a fuel, are altered.

The report says that "a smokeless, solid fuel, readily ignitable and freely burning in the domestic grate can be obtained by the carbonization of coal at temperatures below 700°C. If coal be carbonized above this temperature the solid product is markedly inferior as a domestic fuel. It should be remarked that the temperature of 700°C. is probably a maximum as the experimental work recorded was carried out with cokes which had not been held for long at the maximum temperature. On a manufacturing scale the time factor is much larger and may result in the change in properties occurring at a rather lower temperature."

It was found that by blending the coal with char-forming substances, such as peat or wood, an appreciable improvement in the burning properties may be expected. To do this, however, is not practicable for several reasons.

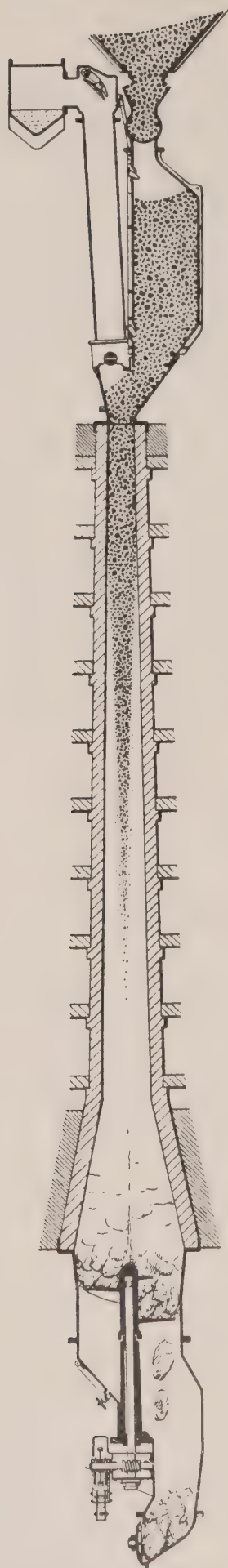
#### Low Temperature Fuel.

Following this work, an investigation was carried out on the characteristics of a satisfactory low temperature fuel. The Company had been manufacturing a low temperature fuel for three years, and the experience of the requirements of the consumer that had been gained was of value in the investigation. The report details the methods by which some of these requirements have been met, and indicates the importance of a strict control upon the quality of a solid domestic fuel.

The need for low moisture and ash contents were first dealt with, and attention given to the unattractive



# Our Solution of the Smoke Problem....



The country-wide consumption in modern appliances of town's gas and dry coke is the best means of checking the smoke nuisance.

Where these pre-eminent smokeless fuels are produced in smoke-free conditions by one or other of West's carbonizing systems, the ideal of the Smokeless City is within reach.

THE GLOVER-WEST VERTICAL RETORT  
AS CONSTRUCTED BY

**WEST'S GAS IMPROVEMENT CO., LTD.**  
MILES PLATting, MANCHESTER, 10.



appearance of the ash of the fuel (Metro-Coalite). With such a highly combustible fuel, the upper surfaces are burnt, and if the nature of the ash is unsatisfactory the fire soon begins to assume a very displeasing appearance. It was realized that the consumer judges more from appearance than from the results of analytical tests. The factor that counted was found not to be the quantity of ash, either by weight or volume, but rather the colour. An ash of uniform colour gave a very dusty, monotonous appearance, whereas an ash which possessed relatively large pieces of contrasting colour gave a much pleasanter appearance on the fire and was more like the ash from an ordinary coal fire.

It was found that a semi-coke, prepared from Nuts, gave an ash of pleasant appearance, and that when a small coal was used (all below  $\frac{1}{4}$  in.) the unsatisfactory looking ash was obtained. Thus the use of small and finely crushed coal must be limited if a satisfactory fuel is to be obtained.

Tests on combustibility showed that fuel varying in size from 3 in. to 1 in. had little effect upon either the average radiation or the radiation efficiency, but that small pieces (below 1 in.) had a decided adverse effect.

#### Efficiency in Use.

The work of Fishenden had shown that the radiant efficiency obtained with a solid smokeless fuel was greater than that obtained with coal, and it was considered desirable to confirm these figures since a higher efficiency in use would do much to justify the high price which is necessary to ask for "Metro-Coalite."

Tests were carried out in a standard well grate in the Departmental Library, which was fed on alternate days with "Metro-Coalite" and best household coal. The tests continued for  $53\frac{1}{2}$  days. All necessary observations were made and the weights of fuel consumed noted. Over the whole period the weight of coal used to the weight of "Metro-Coalite" was as 1.370 to 1.

The behaviour of the two fuels was examined in four different sets of circumstances—leaving the fire

untouched between replenishing times, allowing the fire to be poked, maintaining a very low, controlled fire, and adding large pieces of coal. In each case it was found that the efficiency of the coalite was higher than that of the coal. The ratios of efficiency varied from 1.20 to 1.37, and, as the report states, this "showed that apart from the advantages of cleanliness and avoiding atmospheric pollution and the necessity of chimney sweeping, low temperature fuel can justify its higher price on the score of its higher thermal efficiency."

#### High Temperature Coke.

The concluding section deals with the use of high temperature coke as a domestic fuel. The results of the investigations are summed up as follows:—

"The experimental work on the combustion of coke in the Metro Coke Fire has shown that excessive moisture in the coke was disadvantageous, but, owing to the possible dust nuisance from very dry coke, about 3 per cent. of moisture seemed desirable. The ease of ignition was mainly dependent on the volatile therm content of the coke and for coke to give satisfaction to users a minimum volatile therm content of  $2\frac{1}{2}$  therms per ton (as determined by the Company's test) was essential. Once ignition had been effected the volatile therm content played little part in the subsequent behaviour of the fire, the vigour of combustion then being determined by a property of the ash. This property could be expressed as the ash volume of the coke and was governed mainly by the distribution of the ash in the coal as carbonized. Shale was troublesome owing to its liability to explode if moist. The size of the coke affected its behaviour on the fire, but provided coke of 2 in.—1 in. in size were used, variations normally experienced within the limits of the grade were of little importance."

The report ends with a survey of the properties required in coke for use in domestic boilers. The ability to burn for long periods without attention—flexibility—was considered to be the most important property.

---

#### The Battersea Power Station.

A further report of the Committee presided over by the Government Chemist on the "Treatment of Chimney Gases at the New Battersea Power Station of the London Power Co., Ltd.," has recently been issued. (H.M. Stationery Office, Cmd. 4771, Price 1d.).

The report states that "as to the present concentration of sulphur gases in the flue gases we are of the opinion that the London Power Company adopted 'the best known means of preventing as far as reasonably practicable the evolution of oxides of sulphur,'" and that "we are impressed with the energy exhibited and success obtained by the London Power Company in treating the enormous volume of gases (such as 20 million cubic feet per hour from one chimney) and

consider their performance a notable and pioneering achievement in chemical engineering."

It is nevertheless recommended that "before the completion of the Station be sanctioned it would be well to have regard to developments in technical knowledge on the subject of the removal of sulphur gases from the flue gases that may in the meantime have evolved."

Further, it is stated that "we feel that on account of the thorough washing which the gases undergo, there is no cause to fear the deposition of solid matter from the chimneys. Visually, the white cloud of steam which issues soon dissipates, leaving nothing but a faint greyness or not even this, and attempts to determine the solid matter in the washed chimney gases have so far failed to give any measurable quantity."

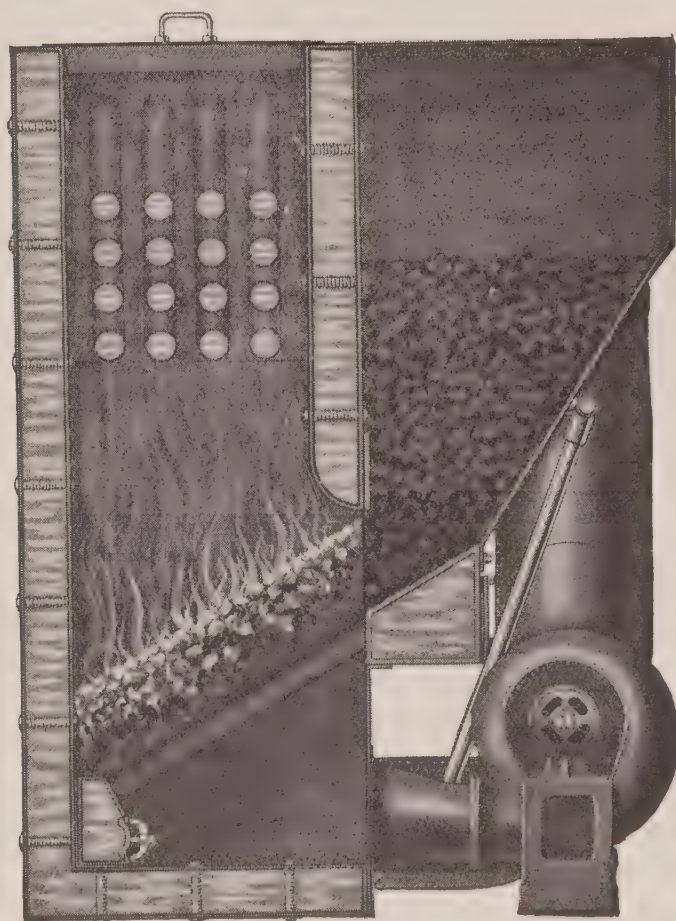


# THE LATEST & FINEST CENTRAL HEATING BOILER in the WORLD

## The Manda Ray Automatic Boiler

Prov. Pat. 14004/34.

Guaranteed  
75%  
Thermal  
Efficiency



Absolutely  
Smokeless

Briefly the "Manda Ray" Boiler includes the following revolutionary features superbly designed in one very compact and attractive whole.

- |                                  |   |
|----------------------------------|---|
| 1 Automatic Stoking.             | 7 Highest Thermal Efficiency.             |
| 2 Automatic Draught Control.     | 8 Ease of Installation.                   |
| 3 Automatic Temperature Control. | 9 Minimum Space Occupied.                 |
| 4 Preheated Air for Combustion.  | 10 Burns Solid Fuel.                      |
| 5 Minimum Attention.             | 11 Most Attractive Appearance and Finish. |
| 6 Reliability.                   | 12 British Throughout.                    |

WRITE NOW FOR FURTHER PARTICULARS

## BRITISH HEATING INDUSTRIES Ltd.

Head Office : Bee Hive Works, Bolton. London Office : Africa House, Kingsway  
Birmingham Office : Exchange Buildings, New Street, 2.



# CORRESPONDENCE

## A Compensated Smoke Tax.

*The Editor*

*Journal of the National Smoke Abatement Society.*

SIR,

I read with much interest Colonel Bristow's letter on the subject of "Smoke Taxes" in the last issue of the Journal, but I was sorry he did not give with more detail his reasons for believing that a *compensated* smoke tax would be bound to create opposition to the progress of the smoke abatement movement. (May I remind readers that my suggestion was that a tax of, say 4/- per ton, should be imposed on raw coal for domestic consumption, and that a reduction in taxation on other household necessities should simultaneously be made to such an extent that the net effect on the household budget would be negligible).

If the compensation were effectively arranged—preferably so the householder would be on the right side as regards the alterations in taxation; if sufficient educative propaganda were issued at the same time—such as an elaboration of the estimate that the raw coal burnt costs the country ten times as much as the proposed tax for damage done in various ways; and if it were pointed out that increased employment would result when all domestic coal had to be "processed" before use, then I think the majority of the population would realize that the measure was for their benefit.

The progress which has been made by the low temperature coke industry appears to have convinced Colonel Bristow that the cause of smoke abatement is progressing at a satisfactorily rapid rate. The fact that the production of one of these excellent smokeless fuels has more than doubled in the last year or so, and that the demand still exceeds the supply, is indeed encouraging, but other processes have, up to the present, been less successful, and in the final result, low temperature cokes will amount to very little more than 1% of the raw coal used for domestic purposes.

These low temperature cokes cost more per ton than the best house coal, and much more than the cheap coals used by very large numbers of the poorer people. I feel that some pecuniary compensation will have to be made before the poorer people will be induced to turn to smokeless fuels, unless the price of these can be reduced very considerably, and the suggested reduction in taxation on other household necessities would, in fact, amount to compensation for using the more expensive smokeless fuels.

It is true that low temperature cokes radiate their heat more efficiently, and so may cost no more than best house coal for the useful heat units obtained, but it will probably be difficult to convince the man-in-the-street that this is so, mainly because of the lack of luminous flames. Also the higher radiation efficiency is in my experience less noticeable when the

fuel is used for heating a modern kitchen range. In many people's households the kitchen fire is the only one except on special occasions.

If it should be decided that the substitutes for the domestic coal fire are not yet in a sufficiently advanced stage, or if the political difficulties in the way of a comparatively large compensated tax should prove insuperable, I would suggest the imposition of a compensated tax of as little as one shilling per ton, with an arrangement for regular increases each year of a size commensurate with advances in the production of smokeless fuels and appliances. Among the advantages of such an arrangement are the following:

(1) It would encourage builders to install in new houses kitchen ranges and special grates adapted to burn smokeless fuels, also gas and electric fires, etc. This has already been done at Chadderton, near Oldham, on an estate which will, when completed, contain 900 houses. The provision of adequate storage space for the bulkier smokeless fuels would also be taken into consideration—a most important matter. In nearly all the houses built recently the storage is so restricted that it is extremely inconvenient to have more than one kind of fuel. Because of this the occupiers are often discouraged from experimenting with smokeless fuels, for they do not wish to take the risk of a complete change-over all at once.

(2) It would encourage a steady development of processes for the manufacture of smokeless fuels and of smoke abatement devices in general, and would cause the entire public to take an active interest in smoke abatement.

In conclusion may I ask readers who may detect possible weaknesses in, or objections to, a scheme of the type I have outlined, to communicate them to this Journal (or privately to me if preferred) as if the scheme can withstand criticism I think that later on it would form a good excuse for a little smoke abatement propaganda in the daily press. I should not, of course, implicate the Society, but if any discussion in the press were to follow, I think this would be useful to the Society.

Yours, etc.,

H. F. TAYLOR.

Inisfree, Lyme Road,  
Disley, Cheshire.

## Cleopatra's Needle.

Cleopatra's Needle, now on the Thames Embankment, remained clean and uncorroded during the centuries which passed between its erection and the time it was brought to London. Since being placed in position it has had to be cleaned three times—1875, 1895, and 1932—in endeavours to arrest deterioration due to the atmospheric conditions of London.



FOR CLEAN AIR AND  
MAXIMUM SUNLIGHT

USE THE SMOKELESS COAL  
NATURE HAS HERSELF PROVIDED

# ANTHRACITE

---



ABSOLUTELY SMOKELESS

HIGHEST IN CARBON, LOWEST IN ASH

VERY SLOW BURNING

SAFE, CLEAN AND ECONOMICAL IN USE

MINIMUM ATTENTION—IT NEVER GOES OUT

THE BEST FUEL FOR—

DOMESTIC HOT WATER BOILERS

CENTRAL HEATING

OFFICE, WAREHOUSE, GREENHOUSE AND GARAGE HEATING



*ENQUIRIES AND DESCRIPTIVE LEAFLETS :—*

**AMALGAMATED ANTHRACITE COLLIERIES LTD.**

81, GRESHAM STREET,  
LONDON, E.C. 2.



# THE WHITE GATE HOUSING ESTATE AT CHADDERTON

## A PRELIMINARY REPORT

The Chairman and Secretary of the Society recently visited the White Gate Estate, Chadderton, near Oldham, which is intended to be entirely smokeless.

Building operations were started this summer, and when completed the estate will contain 900 houses. The scheme is being undertaken by a private company (White Gate Estates, Ltd.) and the houses are semi-detached, selling at a price of £420. They contain a kitchen, two living rooms, one small and two main bedrooms, etc.

The heating arrangements are as follows :—

The kitchen contains either a gas or electric cooker, and a gas or electric wash-boiler. The drawing-room and main bedrooms are heated with electric radiators, set flush in the wall, and the small bedroom has a gas fire. The dining or main living room is fitted with an open grate and back-boiler. The grate is designed for the burning of coke and has wide-spaced bars and a permanent gas-burner along the front for the ignition of the fuel. This grate, with the gas supply, is part of the standard equipment of the houses and is manufactured by the Eagle Grate and Range Co. Ltd.

Coke is supplied by the Oldham Corporation Gas Department and is prepared and graded for such domestic use. A regular weekly delivery to the estate has been arranged, and we were informed that as a rule a one hundredweight bag, costing 1s. 5½., is sufficient for the needs of each house per week. It was stated that the quantity of gas required for the ignition of the coke in the one fire amounts to 33 cubic feet per week, and costs 1½d. Thus the cost compares favourably with any other method of igniting a solid fuel fire, apart from the saving of time and trouble.

Fourteen houses were occupied when the visit was made and a further number of houses were almost ready for occupation. A number of the people were interviewed with a view to ascertaining their opinions on the heating methods. Complete satisfaction was found, and, although a gas-ignited coke-fire was new to all, it was favourably compared with the coal-fired grates and ranges previously used.

The advantages chiefly stressed were :—

- (a) The excellent warmth given to the room.
- (b) The ease and convenience of making, lighting, and tending the fire.
- (c) The abundant supply of hot water obtained. This was apparently a pleasant revelation to most of the occupiers.

- (d) The saving in fuel experienced. It appeared that the average cost of heating the living room and maintaining a hot water supply in the homes previously occupied, had been about 4s. for two cwt. of coal, per week. A saving of 2s. 6d. per week was therefore claimed.
- (e) The interior of the room remained cleaner and did not require as much attention as a room in which a coal fire was in use.
- (f) Satisfaction was expressed with the heating and cooking arrangements.

This scheme was commenced with the definite intention of providing a complete smokeless estate. The architect and the building company are entirely satisfied, and have started a further estate of 1,500 houses, also to be entirely smokeless, at Unsworth, Bury, Lancs. Building costs, it was stated, were not increased by the methods used.

Three points of importance that should be noted as contributing largely to the success of the scheme are :

- (1) The high quality of coke available and the care that is being taken to ensure a regular and adequate delivery.
- (2) The low cost of electricity.
- (3) The initial attention and assistance being given by the builders to occupiers with respect to the ignition and maintenance of the coke fire. Although this is quite simple and readily understood the personal demonstrations given must be of value to people who have had no previous experience.

A further report on the progress of the estate will be made when more houses are occupied and the opinions of the occupiers can be obtained in larger numbers and a useful analysis of their views made. It should then be possible to obtain information of value regarding health, cleanliness, and costs of maintaining decorations, etc.

In the meantime we wish to stress the importance of the scheme from the smoke abatement point of view. Numerous individual houses and flats throughout the country are, of course, entirely smokeless, but as far as we are aware, this is the first housing estate of any considerable size to adopt smokeless methods throughout. The arrangements appear to us to be entirely satisfactory, although there are doubtless alternatives and variations which would be equally suitable. Smokeless methods now afford plenty of choice. We are informed, for instance, that the estate at Unsworth, Bury, to be developed by the same company, will be



modified by the installation of a coke fire in the drawing room and of an "Eagle" coke-burning range in the living-room.

We congratulate the Builder, Mr. Arthur Kershaw, A.M.Inst.B.E., and the Architect, Mr. P. Cummings, A.R.I.B.A., upon their enterprise and foresight in a project that affords an admirable illustration of the practicability of all new houses being entirely free from smoke. We wish to draw the attention of all concerned with housing to this estate, and to point out that its heating arrangements are of direct benefit to the builder, the occupier, and to the community as a whole. We are of the opinion that there is no valid reason why such, or similar, smokeless methods should not become standard practice in housing within a very short time.

CHARLES GANDY, *Chairman.*  
ARNOLD MARSH, *Secretary.*

## NOTES.

BUILDERS : WHITE GATE ESTATES, LTD., 31, King Street West, Manchester, 3.

LOCAL AUTHORITY : CHADDERTON URBAN DISTRICT COUNCIL.

PRICE OF COKE, DELIVERED : 1s. 5½d. per cwt.

PRICE OF GAS : 3s. 8d. to 2s. 11d. per 1,000 c. ft.  
By prepayment meter, 1d. per 22 c. ft.

PRICE OF ELECTRICITY : Fixed charge amounting to 11/6 per quarter for the size of house, plus ½d. per unit used.

# NEWS AND VIEWS

## The Smoke Nuisance in Ancient Rome.

That there was a smoke nuisance of some kind in ancient Rome is seen from a reference "the blackening of monuments" by Horace (Odes III, 6).

*"Delicta majorum immeritus lues,  
Romane, donec templa refeceris  
Aedesque labentes deorum et  
Foeda nigro simulacra fumo."*

Cudworth's translation of this is :

*"On thee will rest thy father's stain,  
Though guiltless, Roman, till thou put  
In order shrine and mouldering fane,  
And statue grimed with dingy soot."*

## "My Foggy Day in Manchester."

Mr. Robert Salkeld, of 551, Chorley Old Road, Bolton, has sent us a copy of a little book of verse with the above title. Mr. Salkeld is fluently indignant at more than one kind of fog he finds in Manchester, but his poem is very largely concerned with the smog he detests. Many of us who live or work in Manchester will join with him in declaiming :

*"O Manchester !  
O Manchester !  
I love thee, but I hate  
The 'fiend of smog' who often shrouds  
Thy airy dome with baleful clouds,  
And drapes thy noble city walls  
With grim, infernal funeral palls :  
Thy streets he taints with fetid breath ;  
His wings droop with the dust of death,  
And darkness veils his surly pate."*

The book may be obtained direct from the author, at the modest price of 6d. each, or 7d. post free.

## Activity at Newcastle.

The Secretary of the Society recently paid a useful visit to Newcastle upon Tyne, where he had the privilege of addressing the North-East Coast Branch of the Electrical Association of Women and the Northumberland and Durham Regional Smoke Abatement Committee. He also met the officers and committee of the Smoke Abatement section of the Newcastle and District Healthy Life Society, as a result of which the section became affiliated to the N.S.A.S. It is hoped that much useful work may be done by the voluntary association, and readers in the district are urged to support it. The Hon. Secretary is Miss F. Archer, B.A. of Buddle House, Wallsend.

The meeting of the Regional Committee turned out to be of especial value from the point of view of publicity for smoke abatement, an extract from the address being read that evening on the B.B.C. News Bulletin on the National programme.

## A New Year Message.

At the New Year the "Salford City Reporter" asked prominent citizens for messages for 1935. The Stipendiary Magistrate, Mr. Percy Macbeth, wrote as follows :

"In 1935 I would like to see an intensive campaign against the smoke nuisance. Every new house should be fitted with grates which will burn smokeless fuel. A clean atmosphere means clean houses, clean streets and clean buildings ; it means that the sun will shine on our city, bringing brightness and health into the lives of all—it means that grass, trees, and flowers will grow where now they perish.

"With the total abolition of the smoking chimney one can picture Salford as a garden city. At present this is only a dream but it can become a reality."



# KEMPTON'S

## "KAYE" COKE FIRES

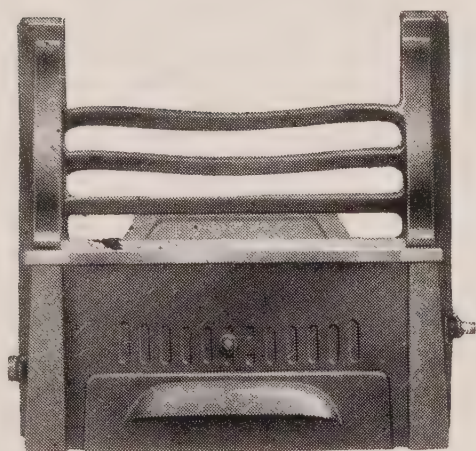
are specially designed for the efficient burning of Coke.

ALL Models fitted with the patent Rocking Bar attachment for ensuring a glowing fire.

No paper or wood required, as the fires are ignited by a gas burner.

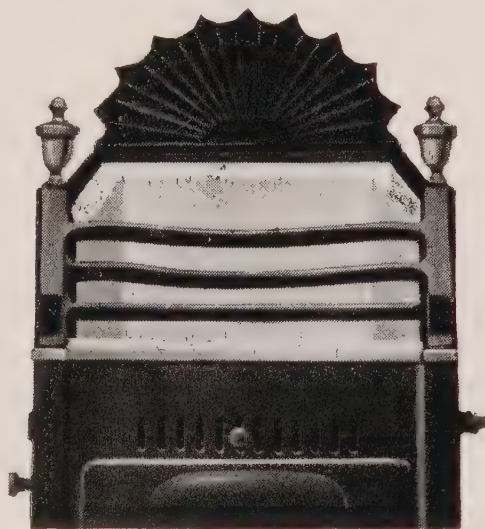
"KAYE" fires are economical to instal and maintain, and are labour saving.

COKE is cheaper than coal, clean to handle, and DOES AWAY WITH CHIMNEY SWEEPING.



"KAYE" No. 1 ADAPTER MODEL.

This fire can be fitted to any existing surround, whether iron or tiles. The surround is not interfered with in any way, only the firebricks being removed. New bricks, in sets of six are supplied for use with this pattern.



"KAYE" No. 4 BASKET MODEL.

This fire is suitable for use in a recessed fireplace with an open flue. No fixing is required.

"KAYE" Fires are made in many different styles : Complete fireplaces, Inset type, Basket, Independent, with Boiler, etc.

*Write or Telephone to :-*

C. H. KEMPTON & CO., LTD.  
70 & 72 BENNERLEY ROAD, S.W.11.

Phones : BATTERSEA 4991 (3 lines)

Head Office :-

STANGATE HOUSE, 235 WESTMINSTER BRIDGE ROAD, S.E.1.

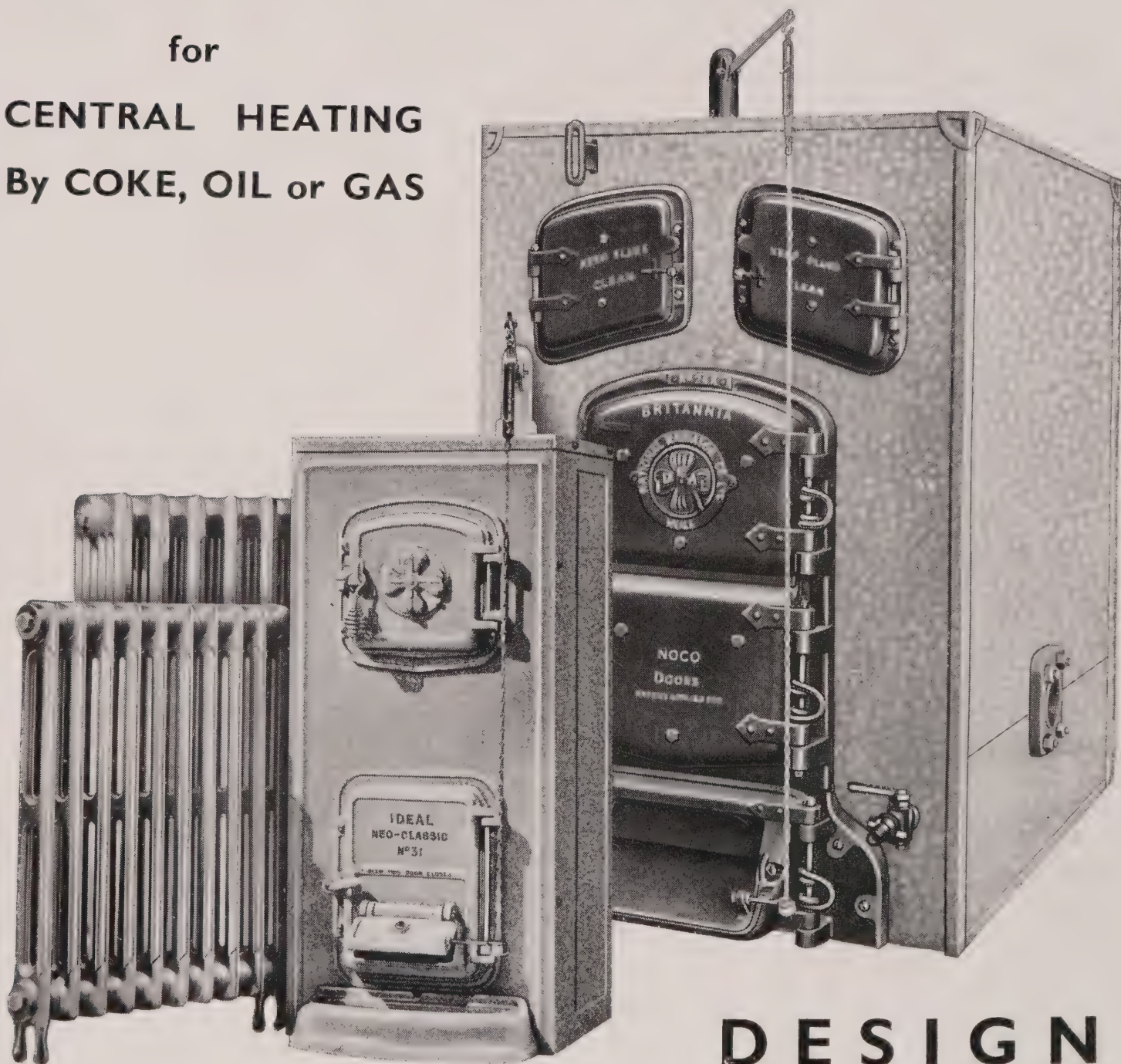
Phones : HOP 3743/5535



# IDEAL

## BOILERS & RADIATORS

for  
CENTRAL HEATING  
By COKE, OIL or GAS



*Write for particulars, post-free*

**IDEAL BOILERS & RADIATORS**

LIMITED

IDEAL WORKS, HULL, YORKS.

**DESIGN  
ECONOMY  
QUALITY  
SERVICE**

Showrooms—London : Ideal House Great Marlborough St., W 1. Birmingham : 35 Paradise St. Also at Hull





Newcastle upon Tyne: During the Coal Stoppage, 1926.

Photograph by Philipson & Son, Newcastle upon Tyne.

# THE JOURNAL OF THE NATIONAL SMOKE ABATEMENT SOCIETY

VOL. VI.  
NO. 22.

MAY  
1935

PUBLISHED  
QUARTERLY  
2/6 a year





# SUNCOLE

The New ALL-BRITISH

*Smokeless* **COAL**

**NO  
SMOKE**

**NO  
SOOT**

**NO  
CLINKER**

'Suncole' - smokeless coal - every piece 100% burning - no cinders - cannot clinker - easy to light - gives a bright-glowing long-lasting fire - bigger, brighter, and 30 % hotter than any other coal.

Equally suitable

**FOR OPEN GRATES : KITCHEN  
RANGES : HOT WATER or  
CENTRAL HEATING BOILERS**



**COSTS NO MORE THAN  
ORDINARY COAL BUT  
GOES TWICE AS FAR**

One ton of 'Suncole' is equal to two tons of ordinary coal. 'Suncole' never varies - it is always free from 'dust' or 'slack.' Quick starting - long lasting - smokeless and wasteless - 'Suncole' is the biggest step forward ever taken in smoke abatement.

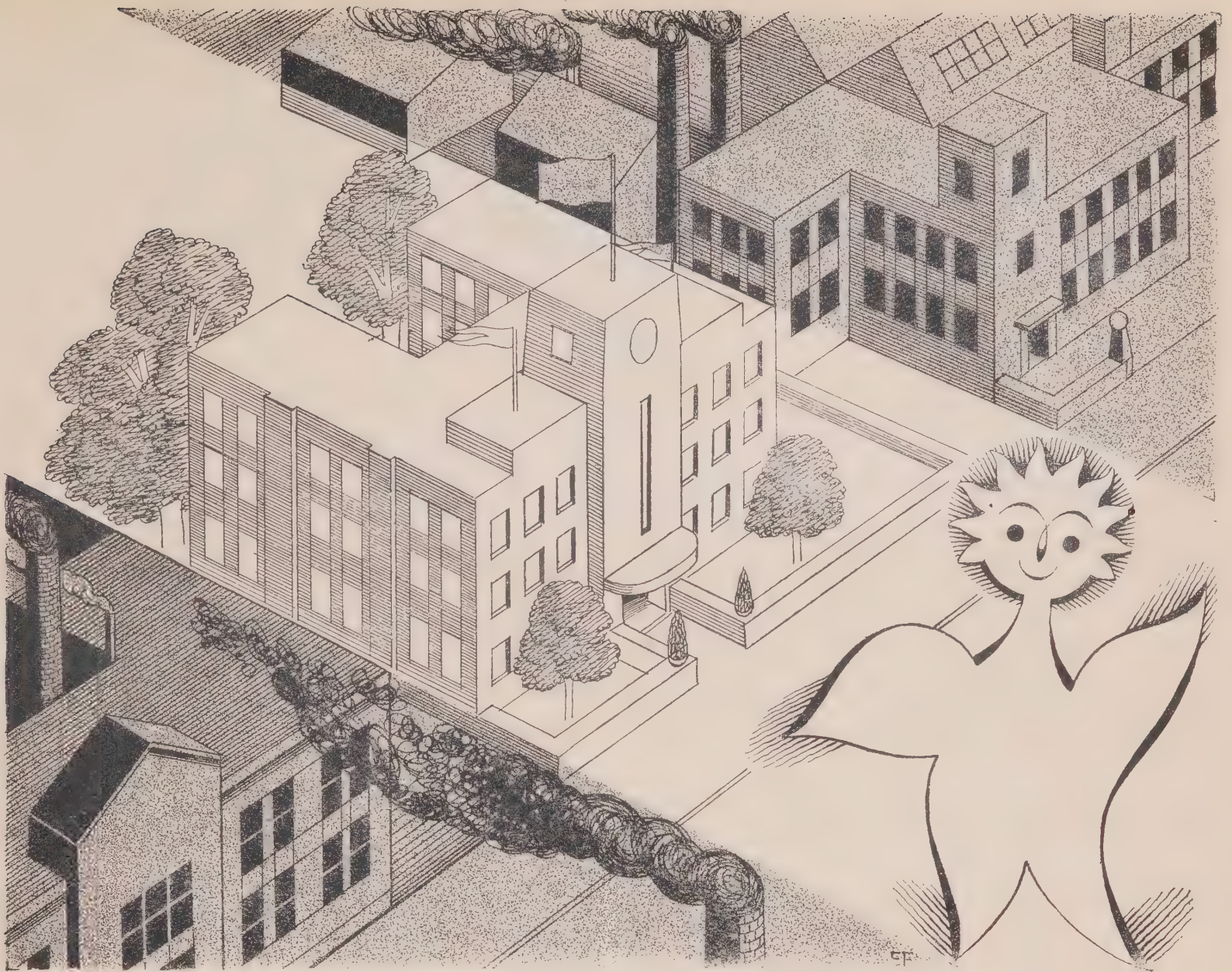
Obtainable from all the leading fuel merchants



*Manufactured by*

**BRITISH COAL DISTILLATION L<sup>TD</sup>  
ASHBY-DE-LA-ZOUCH**





“I’ll clean the skies”

says Mr. **THERM**

Gas is smokeless — but that’s not all. Gas is the cheapest heat on tap — the most suitable fuel for all industrial and domestic uses.

It is a significant fact that the consumption of gas in industry is increasing year by year, and that the newest industries are among the biggest users.

*For literature on gas in relation to smoke abatement, please write to the*

**BRITISH COMMERCIAL GAS ASSOCIATION, 28 GROSVENOR GARDENS, LONDON, S.W.1.**



# THE GRID

Our Reprint No. 1176 entitled "The Grid," from a technical journal, will be sent on request. It is a detailed and comprehensive survey of the System, and includes tables relating to the equipment installed in each Power Station, and lists the personnel in responsible positions.

## COAL SAMPLE REDUCTION

We shall be pleased to send also Reprint No. 1179 entitled "The Reduction of Coal Samples for Analysis," being an account of our investigations of the methods of coal sample reductions in the laboratory.

**BABCOCK & WILCOX**  
LIMITED

BABCOCK HOUSE, FARRINGTON STREET, LONDON, E.C.4

*Kytad*

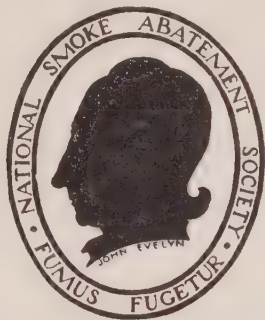


# The Journal of the National Smoke Abatement Society

Editor : ARNOLD MARSH, M.Sc.Tech.

Editorial Office :  
36, King Street,  
Manchester, 2.

Telephone : Blackfriars 0896.



Advertisement Office :  
The Service Guild Ltd.,  
49, Deansgate, Manchester, 3  
Telephone : Blackfriars 3313

Vol. 6. No. 22.

May, 1935.

## Principal Contents.

	Page		Page
Commentary .. . . .	31	The Smoke Merchants' Object .. ..	45
Smoke in its True Perspective .. ..	33	The Campaign in Manchester .. ..	49
The Removal of Smoke and Acid Constituents from Flue Gases.. .. .	37	News and Views .. .. .	49
Where Our Smoke Legislation Fails, by Ernest Clegg, A.M.I.Mech.E. .. .. .	39	Examinations in Boiler-house Practice ..	51
		Atmospheric Pollution, 1933-34 .. ..	53

The Journal is open for free discussion of all aspects of the smoke problem, and the opinions expressed in contributed articles are not necessarily the same as the views of the Society. Quotations and abstraction of matter appearing in the Journal is welcomed, provided the usual acknowledgments are made.

## COMMENTARY

THE change in the cover of the *Journal*, which began in the last issue, has been unanimously approved. The design that had done good service for the last five years was effective, but it had, to say the least, become too familiar. A photographic cover gives more scope for illustrating different aspects of our subject, and we hope that subsequent numbers will be marked by illustrations that will be eloquent in portraying instantaneously what requires many words to explain.

The photograph of Newcastle that appears on the cover of this issue has a significance that can readily be understood. It shows an English city, sunny, clean, and actually with an horizon. Horizons are scarce in this country, and one has only to glance at this photograph with its brightness and clear-cut skyline to see that there is

something abnormal about it. Is abnormal, though, quite the right word? Is it not Newcastle under what should be normal, if by normal we mean natural, conditions? It is natural for Newcastle, and every other town to have a clear sky, unsullied sunlight, and a true horizon. It is true of course that a coal stoppage is an abnormal event in our economic life, and it is a pity that only under such unfortunate conditions can we catch a glimpse of the England that might be. It indicates the degree to which our values have been perverted.

There is always an Annual Conference approaching. Glasgow, with the subsequent preparation and publication of its *Proceedings*, seems only to be just concluded, and yet the arrangements for Bristol are now almost completed. Several valuable papers and interesting discussions can



be promised. The perpetuation of the domestic smoke nuisance in the new housing estates is a subject to which we have already drawn much attention, but which requires a great deal more. The urgency of it is such that the question must be dealt with again, and at Bristol a whole session of the conference will be devoted to what is actually being done in new housing and re-housing schemes.

---

There will be a practical paper on an important aspect of the industrial problem, and last, but not least, there are to be papers by two authorities whose work upon the smoke problem is known to all. Dr. R. Lessing is to give a much-needed paper on "Smoke Abatement and the Coal Industry," which will doubtless clarify the economic problems that must arise as the change-over to smokeless methods becomes more general. "Smoke and the Countryside" will be the title of a paper to be read by Dr. A. G. Ruston, who is the joint author with Professor J. B. Cohen, of "Smoke," in which the important Leeds researches on the effects of smoke upon vegetation are recorded. Smoke is a problem that affects the countryside in many ways, especially in wide belts around the industrial areas, and Dr. Ruston, who is Lecturer and Advisory Economist in the Agricultural Economics Section of the Leeds University Department of Agriculture, will be able to treat the subject with the knowledge and authority that it demands.

---

The Coalburning Appliance Makers' Association has been considering research for the purpose of manufacturing a domestic grate that will burn bituminous coal smokelessly. Knowing that this is not too easy a problem in industrial boiler plant, even with adequate control and technical knowledge of the combustion and heat transmission processes, the Association must be aware of the enormous difficulties of their praiseworthy task. The abolition of smoke does not depend upon any universal panacea, but upon the partial solution offered by a number of different methods. If, to the existing methods, could at last be added a smokeless bituminous fire there would be an added impetus to smoke abatement, and such a fire would be supported by the Society as strongly as any other form of smokeless heating. The criticism may be made that even to burn bitumi-

nous coal smokelessly is wasteful, inasmuch as it uses as crude fuel the volatile substances that could be utilized to better advantage. This is true, but while raw bituminous coal is being burned at all—and it will continue to be burned for various purposes for a long time to come—it is obviously better to burn the volatiles than to allow them to escape in the form of smoke. We hope that Coalburning Appliance Makers will meet with success, and that they will then do all they can to replace the existing smoke-making appliances by the smokeless grate.

---

The Society recently had the opportunity of participating in an exhibition held at Messrs. Selfridge's. This was a Health and Housing Exhibition arranged by the Ministry of Health and the Central Council for Health Education, and was opened by Sir Hilton Young. Our stand, displaying the vigorous new posters used on the ex-E.M.B. frames, and with some new diagram-models, looked bright and interesting, and attracted much attention. It is still surprising to find people who apparently have never heard of smoke abatement, but it is gratifying to find many people who are aware of it and who are pleased to inform one of their own efforts to reduce the nuisance. The exhibition was very successful and is to be repeated during the present month at Messrs. George Henry Lee's store in Liverpool.

---

It is a new experience for the Society to take smoke abatement into the heart of a great London store, and one day we hope that it will be possible to take it into the minds of the people who run these stores. It is already deep in their pockets, if they but knew it. The cost of smoke to Oxford Street alone must be colossal. When one considers those endless shops and stores, and knows of the additional cleaning, window cleaning, lighting, the damage that is done to merchandize, and the elaborate and costly precautions that have to be taken to protect merchandize, it is not difficult to visualize the immense advantages a smokeless city will mean to retail trade. Costs were obtained in the famous Pittsburgh inquiry of 1912, but little specific information has been gathered together in this country. It may be possible, however, before long, to announce particulars of a new investigation into this side of the economics of smoke.



# SMOKE IN ITS TRUE PERSPECTIVE

## AN APPRECIATION OF "TECHNICS AND CIVILIZATION"

One of the most illuminating and richly informative books of recent years is Lewis Mumford's "Technics and Civilization" (London: George Routledge and Sons, Ltd., 18/-). It is a widely-ranging survey of our civilization, considered mainly as the evolution of technical power and organization, but bearing also upon the equally important intellectual and aesthetic aspects of our culture. Professor Mumford has the gift of putting all things in their true perspective. He makes his reader see the significance of each step in the long growth, from earliest times to the present day, of what is now being called "Technics."

Technics is still an unfamiliar word on this side of the Atlantic, but its use can be welcomed for the value of the comprehensive meaning that has been assigned to it. It means more than technology, indicating rather the whole of the method and organization of life, which is built up, as our life is, upon technological processes.

The uncertain, struggling technics of the last century have previously been described, in the terminology of archaeology, as "paleotechnic," and in this work the idea is extended in both directions. The Eotechnic Phase describes the era of growth up to what is badly called the industrial revolution—about which, incidentally, Professor Mumford has many things to say—and the Neotechnic Phase describes the era which we are now approaching: the era of efficiency and understanding and control of the machine; the goal of universal plenty and well-being that is now clearly recognizable as attainable. Here and there, indeed, it can be said that we have already entered into the Neotechnic era. Many of our machines are well-nigh perfected, some of our communications, our utilization of much of the power and natural resources of the world are unmistakably in the forms in which, broadly speaking, they will remain.

But, as our personal knowledge of conditions painfully shows us, we are still largely struggling in the chaos and perplexity of the intermediate paleotechnic stage. Much of our industry, our housing, our town and country planning, our commercial and political organization, our habits and outlooks, are still hopelessly paleotechnic, and it is a hard and lengthy struggle to sweep away and replace the agents and methods of that era with the more highly developed forms that neotechnic research and organization is making ready.

It is a temptation to review at length some of the important observations upon our civilization that are so convincingly stated by Professor Mumford, but for the purpose of this specialized *Journal* it is intended only to show how the smoke problem appears when viewed in the detached and objective manner that is possible by his survey.

### The World in Mourning.

The production and use of power during the paleotechnic phase is aptly headed "Carboniferous Capitalism" and "Blood and Iron." In the author's own words:

"The great shift in population and industry that took place in the 18th century was due to the introduction of coal as a source of mechanical power, to the use of new means of making that power effective—the steam engine—and to new methods of smelting and working up iron. Out of this coal and iron complex a new civilization developed . . . ."

"Iron and coal dominated the paleotechnic period. Their colour spread everywhere, from grey to black; the black boots, the black stove-pipe hat, the black coach or carriage, the black iron frame of the hearth, the black cooking pots and pans and stoves. Was it mourning? Was it protective colouration? Was it mere depression of the senses? No matter what the original colour of the paleotechnic milieu might be, it was soon reduced, by reason of the soot and cinders that accompanied its activities, to its characteristic tones, grey, dirty brown, black.

The centre of the new industrialism in England was appropriately called the Black Country: by 1850 there was a similar blackness round the Pittsburgh district in America, and presently there was another in the Ruhr and around Lille . . . ."

Is this not true of England even to-day? Are not the tones of our cities still grey, dirty brown, and black? The stove-pipe hat has gone, but the black bowler, the black or dun clothing, is still the uniform of our town-dwellers; our buildings, our very homes, are all, even yet, adapted not towards what is pleasing and beautiful, but what will best withstand the dirt. We are still in mourning for the loss of our heritage of cleanliness and light; our senses are still depressed because of our inability to remedy our sewage-filled atmosphere.

Then later, under the heading "The Destruction of Environment," Professor Mumford makes one of the most useful contributions possible to the case for smoke abatement:

"The first mark of paleotechnic industry was the pollution of the air. Disregarding Benjamin Franklin's happy suggestion that coal smoke, being unburnt carbon, should be utilized a second time in the furnace, the new manufacturers erected steam engines and factory chimneys without any effort to conserve energy by burning up thoroughly the products of the first combustion; nor did they at first attempt to utilize the by-products of the coke-ovens or burn up the gases



# WARMTH WITHOUT SMOKE

COAL, COKE, GAS, OIL or 'ELECTRICITY'?

CONSULT

## SAUNDERS & TAYLOR LTD.

Warming, Ventilating and General Engineers

Praed Rd. Trafford Park,  
MANCHESTER

Telephone TRA 2007

11 Dyers' Buildings,  
HOLBORN,  
LONDON, E.C. 1.

Telephone Holborn 9931

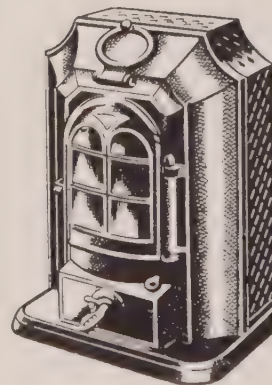
**Anthracite is Smokeless and gives  
maximum Economy with these  
Appliances**



This wonderful cooker saves you 80% in fuel costs! Big cooking capacity — better cooking — no trouble — three large ovens — no daily lighting.

Licensed under  
British Patents  
Nos. 205071  
and 332444.

British Patents  
Nos. 370680 ;  
390119; 390674  
390749; 394177



Ensure healthy  
warmth always.  
No daily lighting.  
Continuous, safe  
heat. CHEAPEST  
in fuel cost.



**ESSE**  
PATENT STOVES

**SMITH & WELLSTOOD LTD.,** Bonnybridge, Scotland

Showrooms at 11, 'Ludgate Circus, LONDON E.C. 4. and at LIVERPOOL, EDINBURGH and GLASGOW



produced in the blast-furnace. For all its boast of improvement, the steam engine was only ten per cent. efficient; ninety per cent. of the heat created escaped in radiation, and a good part of the fuel went up the flue. Just as the noisy clank of Watt's original engine was maintained, against his own desire to do away with it, as a pleasing mark of power and efficiency, so the smoking factory chimney, which polluted the air and wasted energy, whose pall of smoke increased the number and thickness of natural fogs and shut off still more sunlight—this emblem of a crude, imperfect technics became the boasted symbol of prosperity . . . .

"In this paleotechnic world the realities were money, prices, capital, shares: the environment itself, like most of human existence, was treated as an abstraction. Air and sunlight, because of their deplorable lack of value in exchange, had no reality at all . . . . The values of the paleotechnic economy were topsy-turvy. Its abstractions were revered as "hard facts" and ultimate realities; whereas the realities of existence were treated by the Gradgrinds and Bounderbys as abstractions, as sentimental fancies, even as aberrations. So this period was marked throughout the Western World by the widespread perversion and destruction of environment: the tactics of mining and the debris of the mine spread everywhere. The current annual wastage through smoke in the United States is huge—one estimate is as high as approximately 200,000,000 dollars.

In an all too literal sense, the paleotechnic economy had money to burn . . . ."

"This emblem of a crude, imperfect technics" is still, among too many people who should know better, "the boasted symbol of prosperity." Environment, air, sunlight, among too many of the politicians and industrialists of this country, have little meaning compared with the "realities" of life. Gradgrind and Bounderby still flourish in England.

### The Crippling of the Spirit.

The search for aesthetic compensations among the gloom of the paleotechnic age is vividly described by the author. The eye and the mind sought for beauty, and "deprived of sunlight and colour, discovered a new world in twilight, fog, smoke, tonal distinctions." The paintings of Turner and Whistler are products of this compensatory process, until Turner finally reacted from the fog and turned to the purity of light. "In a series of pictures he painted a hymn to the wonder of light, such a hymn as a blind man might sing on finding his eyesight, a paean to light emerging from night and fog and smoke and conquering the world. It was the very lack of sun, the lack of colour, the starvation within the industrial towns for the sight of rural scenes, that sharpened the art of landscape painting during this period, and gave birth to its chief collective triumph, the work of the Barbizon school and the later impressionists,

Monet, Sisley, Pissarro, and most characteristic if not most original of all, Vincent Van Gogh."

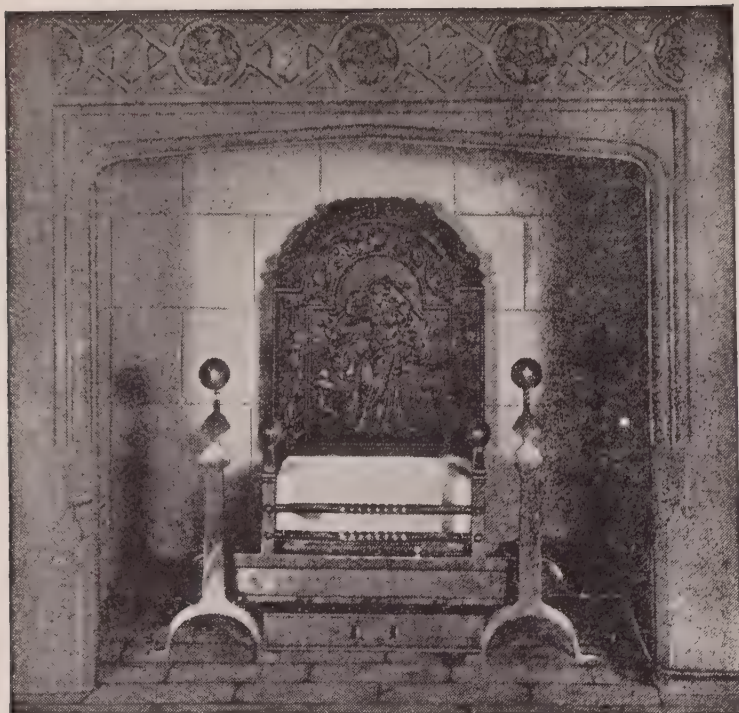
Professor Mumford's brilliant analysis of Van Gogh must be quoted in full because it is an analysis of the whole of the spiritual degradation of the age—a degradation from which the great majority, unlike Van Gogh, have not been able to escape, even up to the year 1935. It should be quoted in these pages too, because it is an aspect of the smoke evil—the effect upon the senses and the spirit—that does not receive the attention it deserves.

"Van Gogh," he says, "knew the paleotechnic city in its most complete gloom, the foul, bedraggled, gas-lighted London of the seventies: he also knew the very source of its dark energies, places like the mines at La Borinage where he had lived with the miners. In his early pictures he absorbed and courageously faced the most sinister parts of his environment: he painted the gnarled bodies of the miners, the almost animal stupor of their faces, bent over the bare dinner of potatoes, the eternal blacks, greys, dark blues, and soiled yellows of their poverty-stricken homes. Van Gogh identified himself with this sombre, forbidding routine: then, going to France, which had never entirely succumbed to the steam engine and large scale production, which still retained its agricultural villages and its petty handicrafts, he found himself quickened to revolt against the deformities and deprivations of the new industrialism. In the clear air of Provence, Van Gogh beheld the visual world with a sense of intoxication deepened by the bleak denial he had known so long: the senses, no longer blanketed and muffled by smoke and dirt, responded in shrill ecstasy. The fog lifted: the blind saw: the colour returned.

"Though the chromatic analysis of the impressionists was derived directly from Chevreul's scientific researches on colour, their vision was unbelievable to their contemporaries: they were denounced as imposters because the colours they painted were not dulled by studio walls, subdued by fog, mellowed by age, smoke and varnish: because the green of their grass was yellow in the intensity of sunlight, the snow pink, and the shadows on the white walls, lavender. Because the natural world was not sober, the paleotects thought the artists were drunk."

The author writes in the past tense because the paleotechnic economy is in reality a thing of the past, even though it may still remain with us. The great value of his book is that he enables us to see more vividly what truly belongs to the past and what truly belongs to the future. And smoke, the clanking engine, and all the rest of the paleotechnic crudities, are seen to be, without trace of doubt, things that are of the past. They are dead, even though they still remain, evil corpses that litter the way to the civilized era we are approaching.





**DOG GRATE No. 236, £ 7 - 10 - 0**  
one of the many charming grates which are available

# THE "METRO" Coke Fire

**S**UPREME FOR THE intense heat generated by the blazing—not merely glowing, mass of coke in the deep fuel bed. Entire freedom from smoke, no soot deposit and readily ignited by the gas burner supplied with every fire. Please write for complete List.

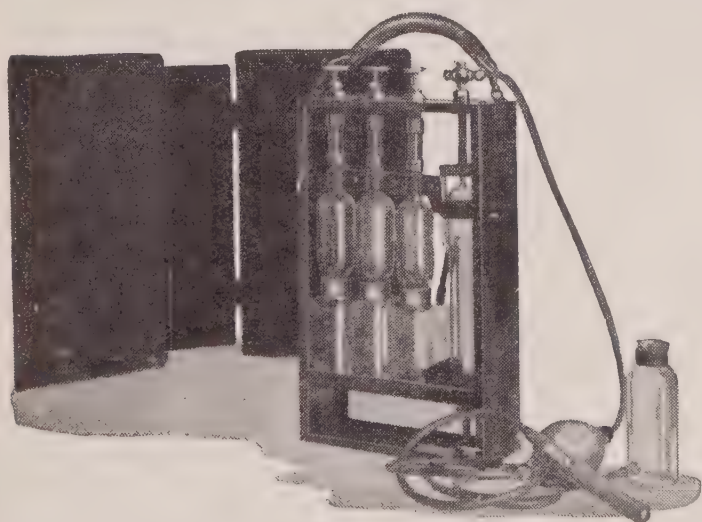
THE METRO COKE FIRE is Manufactured and Distributed for the South Metropolitan Gas Company by Sidney Flavel & Co. Ltd., Leamington



## Sidney Flavel & Co. Ltd., Leamington

LONDON SHOWROOMS: 38 WELBECK STREET, W.1—where "Metro" Coke Fires of many patterns form part of the permanent exhibition of more than 100 selected stoves and fires.

**BLACK SMOKE indicates**  
**incomplete combustion**



HAYS PORTABLE GAS ANALYSER.

Analysing the Boiler Flue gases with the above analyser will enable you to increase the combustion efficiency and prevent black smoke.

*Full particulars from*

**DUGUIDS LTD., LYMM, Cheshire**

## £50 SAVED every month

By USING

**SEOTOO**  
**FLUE GAS**  
**CARBURETTORS**  
**AND "AIRKOOLD"**  
**GRATE BARS**  
**IN FURNACES OF TWO**  
**LANCASHIRE BOILERS**

*For Particulars Apply to :*

**S****MOKE** **P****REVENTION** **L****TD.**

**1 Victoria St., London. S.W. 1**

Telephone : VICTORIA 2671



We are thus able to see our own particular problem with a fresh and invigorated vision. Long and difficult though the abolition of coal smoke is proving to be, this study of civilization helps us to understand that its abolition is inevitable. Every item of progress, every development, every step, is towards the cleaner, finer neotechnic age. Already, often in spite of "paleotect" opposition and reactionary vested interests, civilization is entering into it. Given freedom from the political catastrophe that at times seems so close, nothing can prevent the final emergence from the

paleotechnic phase, and that means that nothing can prevent the final ending of its dirt and gloom and appalling degradation of environment.

This particular problem of ours is, of course, only one among the many that are dealt with in "Technics and Civilization," but it is encouraging to find it put so definitely and so logically into its proper place, and to see it as it really is—an ugly but historically brief phase in the transformation of barbarism into civilization.

We are grateful to Professor Mumford.

## THE REMOVAL OF SMOKE AND ACID CONSTITUENTS FROM FLUE GASES BY A NON-EFFLUENT WATER PROCESS

The above paper was read by Dr. J. L. Pearson, G. Nonhebel, and P. H. N. Ulander, at a joint meeting of the Institute of Fuel and the Institution of Electrical Engineers in London, on January 17th.

The paper is of considerable interest and value, not only because of the detailed account of the process that has been devised, and which, in the form of a pilot plant, has been in operation at the I.C.I. works at Billingham, since April, 1933, but also because of the careful and highly informative introductory sections dealing with the general problems of atmospheric pollution. The sections in which the diffusion of pollution is examined are especially useful. For reference purposes it will be of value to set down the headings under which this analysis of the problem is made. The introduction considers:

- (a) The trend of modern requirements in flue gas cleaning for urban districts.
- (b) Domestic and power stations pollution of the atmosphere.
- (c) General "town" pollution as disclosed by D.S.I.R. Annual Reports.
- (d) The performance of flue gas cleaning plant used in the past.

Section II, on the diffusion of chimney emissions, is sub-divided into:

- (a) A review of the 1932 Report of the Committee appointed by the Electricity Commissioners.
- (b) The classification of the objectionable constituents in flue gas emission.
- (c) The distribution of continuous acid and dust emission from a point source, under average conditions.
- (d) The distribution of continuous acid and dust emission from a line source, under average conditions.

- (e) The superimposition of power station emission on domestic and general industrial emission, under average conditions.
- (f) The diffusion of pollution under abnormal conditions.
- (g) The requirements in flue gas cleaning in urban areas—as fixed from considerations of "emission" distribution.

The conclusions that are thus arrived at, "based upon the fundamental principles underlying pollution diffusion in the atmosphere, definitely delineate, in conjunction with present technical knowledge, the system of flue gas cleaning likely to be demanded and to be acceptable for general application to the power stations in urban areas. High extraction efficiencies for the acids, dust and grit in the flue gas emission are called for, and the only system capable of satisfying such requirements is a wet washing system."

The paper continues by describing the new plant and process developed for the simultaneous removal of grit, dust, and oxides of sulphur from flue gases, in which the removal is effected in an efficient and compact scrubber using a recirculating aqueous medium, treated with lime or chalk. The process employed is different from others, inasmuch as complete flue gas cleaning takes place in the simple form of scrubber incorporated.

The average efficiencies of removal, as given by the plant at Billingham, are:

	Per cent. Removal			
Sulphur Oxides..	..	..	..	97/99
Nitrogen Oxides	..	..	..	70/70
Hydrochloric acid	..	..	..	90/93
Grit and dust from powdered fuel boiler	..	..	..	97/98
Dust from P.F. boiler left in flue gas after having passed through a well-known wetted tube deduster	..	..	..	90/93



**'THERE'S NO SMOKE  
WITHOUT FIRE'**

**But there are  
fires without smoke**

These are *real* open fires, burning solid fuel, which *cannot* make smoke or soot, fires which light without wood or paper . . . think what this means in cleanliness and saving of work.

The fires are specially designed to burn Gas Coke, the *cheapest smokeless fuel obtainable to-day*. The fires do not require laying, they do not need any kindling; they give out more warmth than the old-type grate and they cost *less* for fuel.

Open Coke fires are being made by many of the leading Grate Manufacturers in the Country. Nearly 70,000 were installed last year in the London area alone . . .

. . . The Medical Superintendent of one London Hospital states that the fuel savings in his Hospital since the installation of Coke open fires amount to 55% over other solid fuel. Everybody who has experience of them speaks enthusiastically about their cleanliness and efficiency.

These smokeless open Fires cost no more to buy or install than ordinary open grates. Ask your Gas Company all about them. Or write for a free brochure giving full details and illustrating some of the approved makes. Post free :—

**The LONDON & COUNTIES COKE ASSOCIATION  
9 GROSVENOR GARDENS, LONDON, S.W.1.**



Typical examples of lay-outs for commercial plants are illustrated and the typical designs for scrubbing towers to be installed on the unit principle are shown, and estimates of costs are given. Considered on a cost basis the cost of complete flue gas cleaning is equivalent to 2/1d. to 2/4d. per ton of coal fired.

The grid packed scrubber, as described, may be used for the removal of fine dust from any gas permitting a wet process to be used. It is being used, for example,

for the exit gases of a rotary salt drier working on fertilizers. Practically the same apparatus that is being used for cleaning boiler gases can be used for cleaning cement kiln gases, the alkali consumption then being negligible owing to the lime and chalk content of the dust. The pilot plant has now been transferred for trial on this duty.

The paper, with appendices, is printed in full in the Journal of the Institute of Fuel, VIII, 39, Feb., 1935.

## WHERE OUR SMOKE LEGISLATION FAILS

BY ERNEST CLEGG, A.M.I.Mech.E.

(SMOKE INSPECTOR, BRADFORD)

It is well known that the birth of the Public Health (Smoke Abatement) Act, 1926, in its final form, never created any real enthusiasm either to 'smoke makers' or 'smoke abaters.' So far, the smoke makers seem to have won hands down. Several sections of the Act have proved almost unworkable and pollution in some districts has increased.

Two grave outstanding deficiencies of the 1926 Act, are :

- (I) Difficulty in instituting successful proceedings in respect of smoke of any colour but black.
- (II) In cases of ash and grit emission, the difficulty identification of offending chimneys.

During the past few years much unnecessary dense grey smoke has been discharged for long periods from many power stations and modern, well equipped, Lancashire boiler plants. Such smoke is often the result of the methods employed in attempting to produce steam at the lowest possible cost.

It is not easy to explain the operations involved without going into technicalities, but it is well known that in the working of boilers, some heat losses cannot be avoided, whilst others can be prevented or reduced. It is the juggling with these losses—a kind of robbing Peter to pay Paul process—which indirectly causes smoke.

In simplest terms, it is often due to the practice of reducing the draught to the lowest possible limit, in order to prevent any unused cold air passing through the fuel beds, extracting heat from the boiler furnaces and flowing up the chimney at high temperature to be wasted. In other cases only the minimum number of boilers in a plant are put into operation and heavily forced in order to avoid undue radiation losses. The result in both cases when carried to extremes, is to unduly reduce the ratio of the air supply to the fuel. This brings about smoke formation, hour after hour, the density increasing in inverse ratio to the air supplied.

Although many modern boiler plants are adequately equipped, scientifically managed, and produce little smoke, there are others where the highly commercialized control of boiler operation has resulted in regulating the black smoke discharged to just within the legal limit, and at the same time greatly increased the border line smoke output.

There is no reason whatever why the measure of necessary smokiness should not be taken from the ordinary, simple, plain hand fired Lancashire boiler plant. If such plant is provided with adequate draught, and a proper method of firing is coupled with care and attention ; it is just as easy to avoid prolonged dense smoke as it is to avoid lengthy black smoke. Actually, nothing but a broken light grey smoke need be emitted for about a minute after each charge of coal.

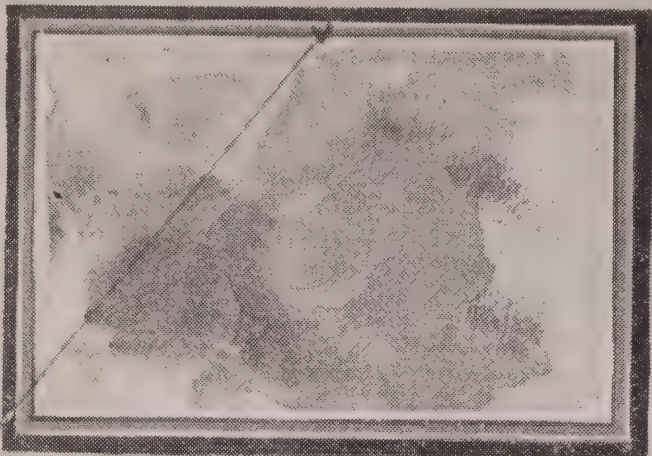
The best feature of the 1926 Act is the 'time limit' provision of the bye-law, which gives both parties to the act a definite base to work upon. This 'time limit' could now be well extended to cover all unnecessary smoke. If the word 'dense' was substituted for 'black,' it would entail no hardship, and the ambiguous and almost dead section relating to smoke other than black could be used for very special circumstances or dispensed with altogether. In its present form it is supplied with nearly every possible obstacle to a successful prosecution.

Unless some alteration to the law is quickly made there will be no further reduction of dense smoke from thousands of boiler chimneys, where such smoke, weight for weight, is often many times greater than the black smoke output.

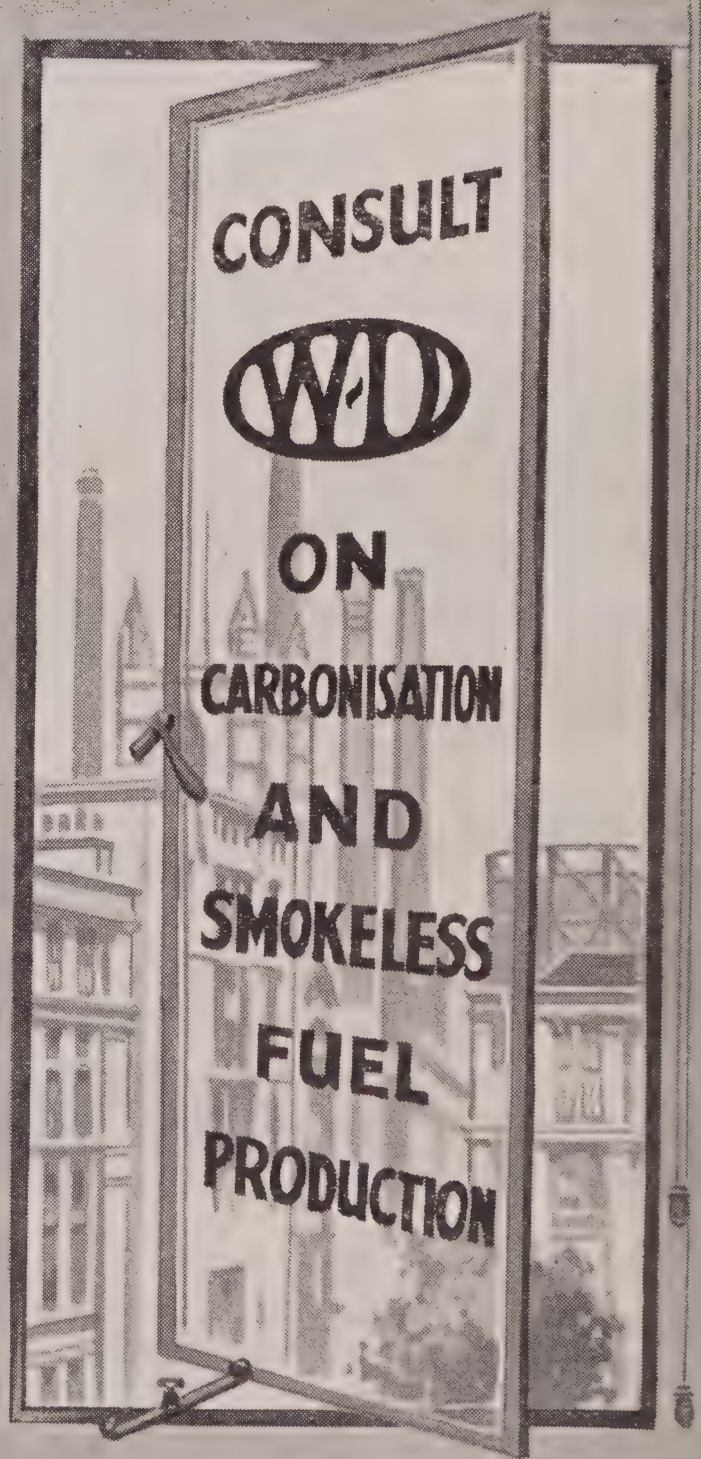
### Grit.

Grit or ash emission in some districts may cause more suffering than smoke. In fact, if an examination were made of the atmospheric records in any considerable industrial district it would be found that the ash often constitutes nearly half the total deposit. Even this does





**OUR IDEAL -  
A SMOKELESS  
CITY**



**CONSULT**



**ON  
CARBONISATION  
AND  
SMOKELESS  
FUEL  
PRODUCTION**

THE WOODALL-DUCKHAM VERTICAL RETORT & OVEN  
CONSTRUCTION COMPANY (1920) LIMITED  
EBURY & ALLINGTON HOUSES, 136-150 VICTORIA ST., LONDON, S.W.1



not indicate all, as a considerable amount of grit is discharged from chimneys in the form of semi-coke particles and the carbonaceous matter contained therein would come under other headings.

For practical purposes the discharge of ash and grit from domestic chimneys is almost negligible. The real culprit is the factory chimney. In some districts grit pollution is unknown, but in others it is dreaded more than smoke. Grit emission varies greatly according to the size of the fuel used, the method of burning it, and the operation of the plant. It may be more or less continuously discharged from Lancashire boiler plants in the form of half coked particles of coal or 'black sand.' This is usually produced by a combination of forced draught sprinkling machine stokers and fine slack fuel.

At some works, steam jet soot blowers are installed, these are operated daily so as to eject the soot and fuel dust from the boiler flues and economizers, and up the chimney.

In order to escape detection the blowers are sometimes used during the hours of darkness. Although soot collecting chambers are sometimes installed to receive the discharge they are not always efficient. Installations of these soot blowers are rapidly increasing in many parts of the country.

Tubular boilers which are largely used at power stations are invariably equipped with soot blowers, but many of these plants are now fitted with grit arrestors. Pulverized fuel firing is always attended by objectional discharges unless very efficient grit arresting plant is installed.

Under the 1926 Act, grit is regarded as smoke other than black, but the very real obstacle to successful court proceedings is the almost impossibility of proving identification of offending chimneys to the Magistrates' satisfaction, particularly if the chimneys are in a large industrial centre. This is chiefly due to the fact that grit may be spread over a radius of several miles, and within its spread there may be many boiler plants each capable of discharging the same class of grit.

Upon inspection an experienced Inspector might soon get his mind at rest as to the plant likely to be responsible for grit emission, and a glance at deposited grit quickly indicates the class of plant from which it originated, but when such plants are duplicated in a small area, and the grits discharged are as much alike as the sand on the seashore, the task of relating the grit to any particular chimney either by comparison, observation, analysis, or any other method is nearly hopeless.

It must be realized that it is impracticable for an Inspector to stand on the top of a factory chimney and catch grit as it is emitted in order to obtain the necessary evidence. It is fortunate however, that from an engineering standpoint there is no practical difficulty in preventing the discharge of gritty matter in objection-

able quantities. The remedy is either to avoid the use of unsuitable fine slack coal or install efficient grit arrestors. There is nothing complex about this, and many really good centrifugal, liquid or electrical types of soot and grit precipitators are now on the market.

If this deadly and growing grit menace is to be stopped, fresh legislation is required and it must approach the matter from an entirely different angle to that contained in the 1926 Act. Nothing short of a new Act should be drafted, giving authorities power to insist upon the installation of efficient grit arrestors at all works where the equipment of the boiler plant is capable of causing the discharge of soot and gritty matter into the atmosphere.

### Other Weakening Effects.

Other features which greatly weaken the effects of the (Public Health) smoke laws, are :

- (I) The long drawn out legal procedure which must be conducted before an offender can be brought to account.
- (II) The linking up of the legal process with general nuisances.

These conditions which are inseparable from the present Acts, have far reaching enfeebling effects and retard the deterrent power of the Acts more than is usually seen at first sight. In the minds of many smoke makers and magistrates, they have undoubtedly created a strong impression that smoke offences are only trivial matters and may be treated accordingly.

Attempts have been made by some authorities to overcome these inherent disabilities by the making of other legislation in the form of private smoke Acts which have not only speeded up the procedure, but increased the penalties and even anticipated some portions of the 1926 Act by making it an offence to discharge gritty matter.

To digress a little I may say that for some years previous to the operation of the Public Health (Smoke Abatement) Act, 1926, the local Acts of 1910 and 1913 relating to the emission of smoke and grit were successfully worked in Bradford. Under these private Acts it was an offence to permit any chimney (other than that of a dwelling house) to discharge any grit or smoke that it was practicable to prevent by any known means, or to use furnaces which did not make provision for the requirements of smokeless combustion. The maximum penalty was £5 for a first offence; £10 for a second, and £50 for subsequent offences. No abatement notices were required. The only preliminary to a prosecution was the service of a written notice of the smoke discharged within one day of the commission of the offence.

The person legally responsible was the person having the decisive control of the furnaces at the time of the offence.



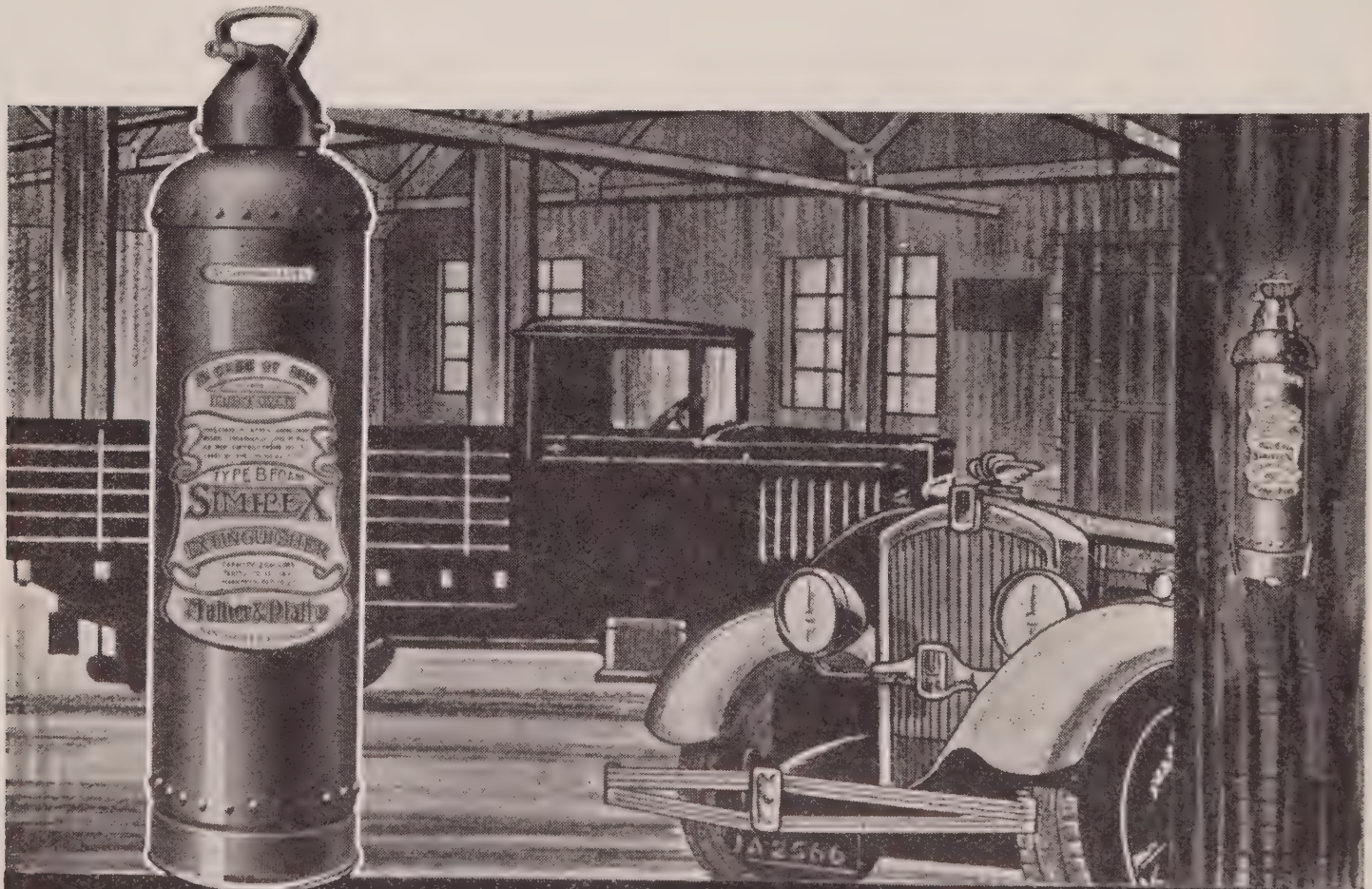
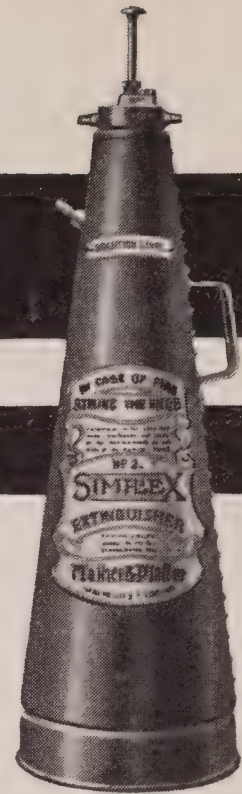
# SIMPLEX

## EXTINGUISHERS

### SODA ACID and FOAM TYPE

"Simplex" Extinguishers, approved by all Insurance Companies, combine maximum efficiency with simplicity in operation and unfailing reliability with lowest cost. They are made in a wide range of colours to harmonise with any decorative scheme.

A catalogue printed in natural colours will be sent on application.



**Mather & Platt**  *Ltd*

• PARK WORKS, MANCHESTER, 10. •  
PARK HOUSE, CT. SMITH ST. LONDON, S.W.1.

MP 186



It will be understood that the preliminary inquiries involved, the investigation into the causes of smoke, the fixing of the responsibility and the proving of the cases later in Court, all called for a considerable depth of technical and practical knowledge of furnace construction and boiler operation.

Successful court proceedings were instituted in respect to both furnace construction and grit emission. From the year 1920 until the 1926 Act came into operation, 83 prosecutions were instituted against 36 occupiers, 33 firemen and 14 engineers-in-charge. Many of these cases were defended by expert witnesses, yet the success attained may be gauged by the fact that 80 of these cases were proved in court and penalties or costs imposed.

In recommending the adoption of the Public Health (Smoke Abatement) Act, 1926, the Bradford Corporation engineering advisers were somewhat diffident of the results that would be obtained in practice, as compared with the private Acts then operating. The chief factor which turned the scales in its favour was the desirability of securing a greater degree of uniformity with other authorities in the West Riding of Yorkshire. Unfortunately, uniformity in the permitted black smoke emissions has not been achieved owing to the Ministry's departure from its original recommendation and the substitution of the three minutes total permitted black smoke discharge in the half-hour instead of two minutes.

The results of operating the Act for the past six years are briefly set out in the following table :

Year	Number of Notices served to abate Black smoke					Mean, aggregate black smoke per notice					Number of Prosecutions					Average Penalty £ s. d.		
1929	..	..	102	..	..	..	5.8	mins.	..	..	12	..	..	..	..	4	4	8
1930	..	..	62	..	..	..	6.1	mins.	..	..	7	..	..	..	..	1	7	8
1931	..	..	63	..	..	..	6.9	mins.	..	..	4	..	..	..	..	14	0	
1932	..	..	58	..	..	..	7.2	mins.	..	..	4	..	..	..	..	8	0	
1933	..	..	68	..	..	..	7.2	mins.	..	..	3	..	..	..	..	1	3	8
1934	..	..	37	..	..	..	7.0	mins.	..	..	1	..	..	..	..	2	0	0

Nine Abatement Notices were served for the emission of smoke other than Black; and four Notices for the emission of gritty matter.

A total of 390 Abatement Notices were served, in respect to the discharge of excessive black smoke. In all these cases the cause of smoke was carefully ascertained and details are shown in the following summary :

Causes of Smoke										No. of cases	Percentage
Heavy spread firing at too long intervals	..	..	..	..	..	..	..	..	..	201	51.5
Neglected coal feed of machine stokers	..	..	..	..	..	..	..	..	..	107	27.6
Inadequate plant	..	..	..	..	..	..	..	..	..	24	6.0
Defective condition of the furnaces	..	..	..	..	..	..	..	..	..	16	4.1
Firemen engaged on other duties	..	..	..	..	..	..	..	..	..	16	4.1
Insufficient boilers operating	..	..	..	..	..	..	..	..	..	15	3.9
Undue restriction of draught	..	..	..	..	..	..	..	..	..	11	2.8

It will be seen that negligence in some form or other was responsible for 94 per cent. of the cases. Additional plant being required in the remaining 6 per cent, (chiefly apparatus for increasing the draught). This figure would probably have been higher if more works had been fully engaged. It may be noted that two-thirds of the Lancashire boilers are fired by mechanical stokers.

To thinking people, the figures showing the extent and causes of smoke, give much food for thought. It must be almost impossible for anyone with smoke abatement at heart to really believe that they live in an otherwise well governed and civilized community.

Surely, there must be something wrong with smoke laws that have permitted all this appalling carelessness and great number of offences to be committed with impunity.

It is an unfortunate but well known fact that the furnace users who make most smoke and are frequent transgressors have no smoke conscience. Undoubtedly, such contentment of mind is largely fostered by the ridiculous Acts which allow them to commit every possible carelessness and spread their damaging smoke into the atmosphere at any time, unless they are under a Notice to abate. Even so, these Notices are often only regarded as a temporary matter, having but a life of six months; smoke makers being then at liberty to again discharge their smoke both by day and night, knowing well that service of Notices and legal procedure must be recommenced all over again.

The facts must be realized that gross indifference and carelessness are extraordinarily prevalent and cannot be tolerated much longer. For many years the mistaken policy of 'spare the rod' has prevented real progress in smoke abatement.



# BETTER, HOTTER AND CLEANER FIRES

---

Smoke abatement does not mean that open fires must be abolished. The use of the open fireplace in this country ensures well warmed and ventilated rooms at a cost much below that of any other system of heating.

**"COALITE"** is the best fuel obtainable for the open fireplace. It is a smokeless fuel made from the best British coal. Only clean washed coal is used so that the ash content is reduced to the lowest possible figure. In the manufacture of **"COALITE"** the soot and smoke producing constituents of the coal are eliminated, leaving a highly efficient radiant smokeless fuel.

**"COALITE"** gives the maximum useful heat with the minimum loss.

**"COALITE"** lights easily with paper and wood and quickly gives a clean, hot and cheerful fire in any type of open grate, kitchen range and closed stove. **"COALITE"** is the fuel for all purposes as it requires no special grate nor excessive draught or gas jets to assist lighting up or combustion.

**"COALITE"** is an economical fuel, though its price may appear somewhat higher than that of raw coal. An independent test for consumption and heat in an ordinary open fireplace carried out from November, 1931, to April, 1932, under normal practical conditions, showed that one ton of **"COALITE"** went as far as  $27\frac{1}{2}$  cwts. of best coal and gave equal heating.

A saving of 37% in the amount of fuel used was therefore effected and thus, in spite of its somewhat higher cost per ton, **"COALITE"** is cheaper in use than ordinary coal and provides cleaner, better and brighter fires.

## **"COALITE"**

---

*(Regd. Trade Mark)*

*Supplies are obtainable from all leading Fuel Merchants. If any difficulty is experienced please communicate with the Company :*

**LOW TEMPERATURE CARBONISATION LTD.**  
28 GROSVENOR PLACE, LONDON, S.W.1

Telephone SLOANE 9274



### The Need for Effective Legislation.

It is apparent that the Health Ministry requires someone with the originality and foresight of a Hore-Felisha to liven things up. We should then probably get legislation which did not require the issue of numerous Notices or an offence to be committed over again, before penalties could be imposed. In many respects both smoke and motoring offences are similar ; both are largely due, not to the want of knowledge but to the want of thought and care ; yet, the greatest possible contrast is to be seen in the applicable laws.

General smoke legislation of an effective and compelling character has never materialized largely owing to an erroneous idea that smoke prevention would necessitate much expenditure. The true facts are shown in the evidence of the six years record of the causes of smoke—a terrible record of negligence with impunity, which speaks for itself.

Before the bye-laws came into operation, furnace users never knew how much smoke they could discharge

before it became an actionable or unlawful nuisance. This vagueness or uncertainty has now been removed, and all such people know that it is not permitted to discharge more than two or three minutes black smoke in a period of half an hour.

The service of Abatement Notices often involving delay of weeks or even months in some districts before they take effect, the waiting for the offence to be repeated before the Court action can be taken, is a machinery much out of touch with modern methods and necessities. It is a procedure which should be abolished. To this end, so far as smoke is concerned, legislation is required whereby smoke cases may be referred to a Court of Justice within a few days of an offence having been committed. Until this is done offenders will never realise the grievous nature of their negligence, and the continuance of 60 years of compromise and failure will not cease until there is a clean sweep of the existing weak, dilatory and ineffective smoke laws.

---

## THE SMOKE MERCHANTS' OBJECT

### "PERNICIOUS" SMOKE ABATEMENT PROPAGANDA

The progress of a reform can often be judged by the opposition it provokes as well as by the support it receives. No effort to promote a great change can go far without meeting criticism and possibly antagonism. This may be disagreeable, but on the whole it is preferable to the much more obstructive apathy that generally exists at first.

During the last month or two there have a number of attacks upon the work and the integrity of the Society, and, as would be expected, these all come from gentlemen who are actively interested in the perpetuation of the bituminous open fire.

An anonymous writer, calling himself "The Coal Man" asked the "Oldham Evening Chronicle" to publish an article giving the point of view of the coal retailer towards smoke abatement. This, though, was not the reasoned criticism of the domestic fuel problem that might have been written with good purpose, but was rather a splenetic attack upon the Society itself.

"The mills came to Oldham," writes this representative of the coal trade. "They may be hideous blots in the landscape and be as sand in the mouths of the National Smoke Abatement Society, but there are an odd one or two whose ascetic (*sic*) tastes can only be indulged in after meeting such practical necessities as next Sunday's dinner."

Again: "It would appear from the N.S.A.S. that half the population are gasping their lives out in our atmosphere of poison gas. Do let us have some sense

of proportion. The world is full of people who want to deprive us of our perfectly natural pleasures . . . . Perhaps there are in the atmosphere certain harmful gases produced by house coal fires, but there are other things stalking about inimical to health if we like to go looking for them. If we took any notice of the faddists there are a lot of things we would not do."

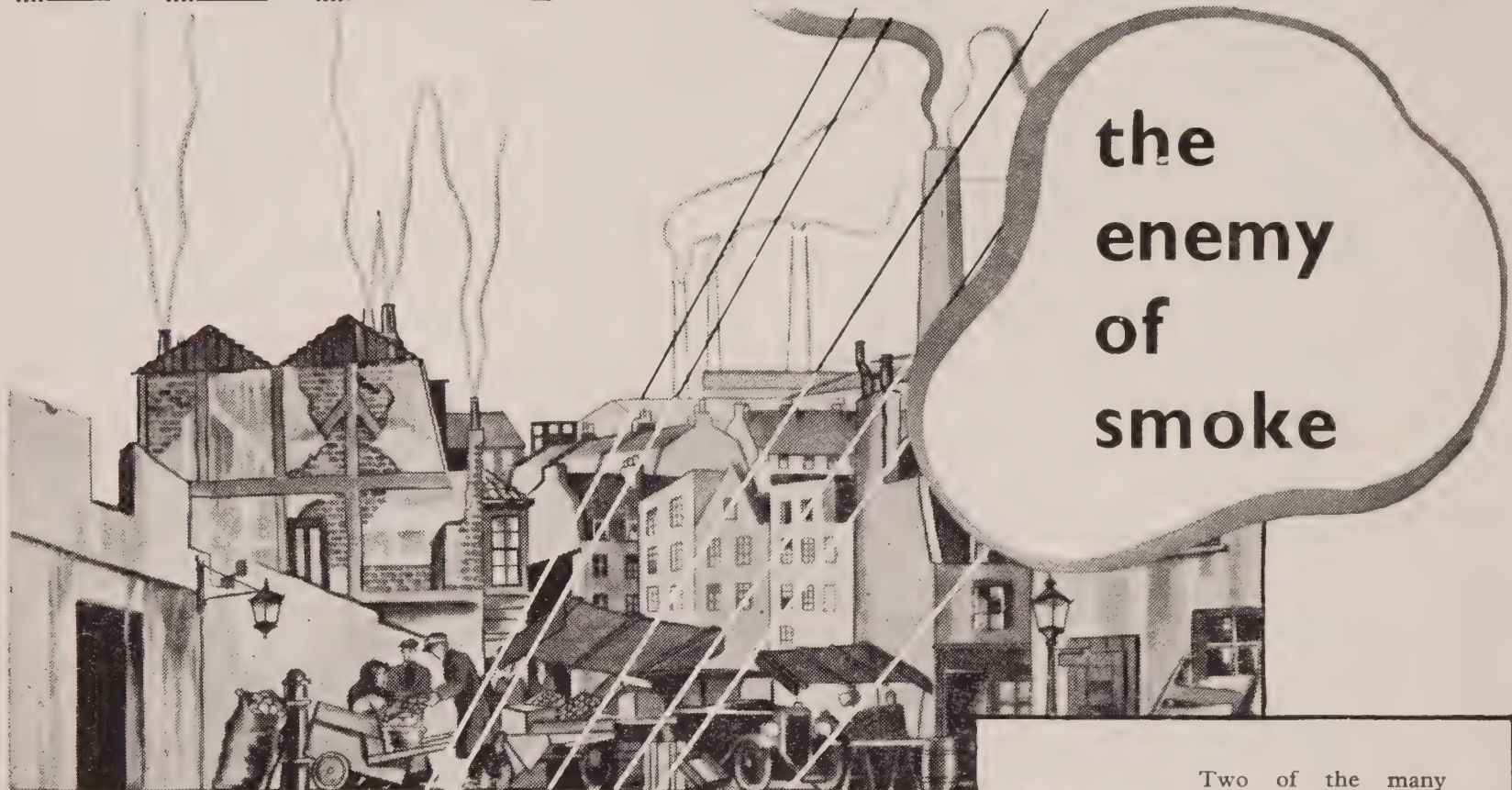
This, and much more in the same strain, is an illuminating doctrine for the twentieth century. It should perhaps be considered in conjunction with Professor Mumford's caustic remarks on the "paleotects" which are quoted on another page. Such a distortion of the smoke abatement movement could not be left unanswered, and the Editor of the newspaper was good enough to print an article from the Society replying at length to all the wild statements of the "Coal Man," and no doubt the readers were then able to judge for themselves whether there is a smoke nuisance or not.

#### "Self-Interest."

And then we find a representative of the coal trade using his position as a member of a Borough Council to attack the Society. The Glasgow resolutions (on grit emission and housing), having been circulated to all Local Authorities, were in due course considered by the Borough of Brentford and Chiswick. They were strenuously opposed by Councillor K. A. Cleland, who is a director of the well-known firm of coal factors, Messrs. Brentnall and Cleland.



# ELECTRICITY



the  
enemy  
of  
smoke

Electricity is the most powerful ally of those engaged in the winning fight against the evil of smoke pollution. Electricity is the perfect, smokeless, pure source of light, heat and power. Local authorities everywhere are finding that the all-electric re-housing scheme is the most truly economical. Magnificent blocks of all-electric flats, cheerful all-electric houses, are revolutionising the living conditions of the million. The output of current has increased by over 155 per cent. in the last ten years. Users of electricity now number over six million. Current is available throughout three-quarters of the country at about three-farthings a unit. The time is near, very near, when electricity will have brought the blessings of pure air and sunlight to *everyone* in the land.

Two of the many  
successful electric  
re-housing schemes.



**Ossulston Estate,  
Somers Town.**  
Tenants are delighted  
with the economical  
electric equipment.



**Preston Corporation  
Housing Scheme.**  
Houses vary in size,  
rents ranging from  
6/4 to 10/6 weekly.

Architects, Members of Housing Committees, Engineers of Municipal Authorities and others will be interested in "Electricity and Re-housing" giving detailed particulars of above and other housing schemes. Free on request. Enquiries should be addressed to The Director and Secretary,  
**ELECTRICAL DEVELOPMENT ASSOCIATION, INC.**  
2 Savoy Hill, London, W.C.2.

Telephone is Temple Bar 9434



His speech was fully reported in the local press, and apparently consisted of an analysis of the sources of the Society's income, which revealed the dreadful fact that we receive some support from industries that have a "considerable self-interest in the matter." Because of this he appealed to the Council not to become the cat's-paw of societies that had axes to grind.

"An Englishman's home was still supposed to be his own, and he thought he was entitled to burn what he liked in it."

"He referred"—again quoting from the press report—"to some propaganda on this matter as pernicious, especially referring to statements that smoke caused rickets in children."

Councillor Cleland was not without courage in rising to criticize "self-interest," but his argument fails because while the Society's work prompts the support of the smokeless fuel concerns, this support in no way depends upon or influences the need for smoke abatement that created the Society. He tried to create the impression that these concerns support the Society because the Society will then advocate the use of their products, which, of course, is totally wrong and unjustified.

Later, in a letter to the newspapers which published the report of this speech, the secretary of the Society pointed out that the resolution on housing that had caused this attack was very similar to one of the recommendations of the Departmental Committee on Smoke and Noxious Vapours Abatement. If the resolution had been prompted by self-interest what was the self-interest behind the responsible Governmental Committee that had said the same thing? This was a question which, with others, Councillor Cleland preferred not to answer.

As a coal factor he demands that a man should have coal to burn if he wants it; but he does not, as a Councillor, demand that a man should have healthy air to breathe if he wants it.

### In Lancashire and Cheshire.

Finally we come to the continuous attack on smoke abatement that is carried out in the Lancashire and Cheshire area through the agency of a Mr. Thomas Walker, of Grappenhall. Mr. Walker has been circularizing the press in these counties for many years with numerous letters, all of which try to demonstrate (a) the blessings of the coal fire; (b) the faults and dangers of smokeless fuels of every description; and (c) the reprehensible behaviour of the National Smoke Abatement Society.

Mr. Walker is very persistent and very ingenious, and his arguments range from showing that smoke, by cutting off sunlight, is a safeguard against sunstroke, to explaining that the use of smokeless fuels will not improve the condition of the atmosphere. His letters

are always answered, and frequently lengthy controversies develop in the local papers which afford much welcome publicity.

Sometimes though, Mr. Walker's own letter is sufficient answer and comment in itself, and the following gem is worth quoting in full:

"To the Editor.

Sir,

During January I noticed in the Press reports of seven cases of gas entering buildings in four northern counties alone, the damage done by these serious leakages including three deaths and the illness of eighteen other people. Yet the current issue of the *Journal* of the National Smoke Abatement Society contains an appeal by 'Mr. Therm' for people to use gas for heating because 'he' clears the air.

"It is surely time that consideration of questions of atmospheric pollution should be entrusted to a responsible body.—Yours etc.,

THOS. WALKER."

It will be seen how certain tragic accidents are cleverly used to attack the gas industry as a whole, and how this is then developed into an attack upon the N.S.A.S., to end with the implication that we are an entirely irresponsible and discreditable organization.

Seriously though, is this sort of thing worthy of even the most reactionary sections of a great national industry? No matter how smokeless the country may become it will continue to depend upon coal. All that will change is the replacement of primitive by modern methods, which, in increasing the value of the mine product and creating new auxiliary industries, will materially add to the prosperity and stability of the industry. Why stoop to such petty opposition because public opinion is beginning to condemn the most primitive method of coal utilization? In Professor Mumford's phraseology again, is the coal industry—or parts of it—content to anchor itself in the paleotechnic phase when the rest of the world is moving rapidly into the neotechnic era? How can it achieve prosperity by being behind, instead of ahead, of public opinion and scientific development?

The smoke abatement movement ought to have its strongest ally in the coal industry instead of the cheap antagonism that is appearing here and there. We believe that there is sympathy with our movement in the more enlightened quarters of the industry, and that this die-hard element is small and not really representative of the whole.

Smoke abatement ought to come not in spite of the efforts of the coal industry, but rather because of the efforts of the industry working simply in its own interests. Those we have called the smoke merchants are in reality working against their own industry as much as against the smoke abatement movement.



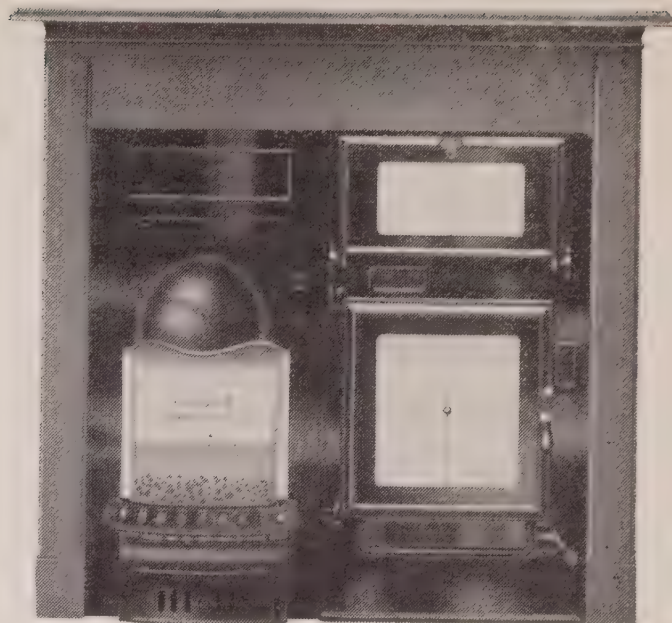
# The **EAGLE**

## COKE BURNING COMBINATION GRATE

THE 'EAGLE' L.C. 21 COKE-BURNING COMBINATION GRATE ensures perfect cooking, abundant hot water and a bright open fire, at a very low fuel cost.

Coke as a domestic fuel has many advantages—no smoke, no soot, economical and clean in use, easily lit by means of the gas burner without the use of paper and firewood.

Write for further particulars to :



The **EAGLE RANGE & GRATE Co. Ltd.**  
CATHERINE STREET  
ASTON, BIRMINGHAM, 6

### THE JOURNAL OF THE NATIONAL SMOKE ABATEMENT SOCIETY

is undoubtedly the ideal medium in which to advertise Smokeless Fuels and every appliance or device for minimising or abolishing the smoke nuisance. The advertisement rate is very moderate, while advertisers are assured of **every copy** of the Journal reaching the people who are working for this great modern reform. Smoke Abatement is not a theory ; it is not merely hygienic propaganda. **It is a step forward in the life of the nation.** The movement is making wonderful progress ; it is overcoming all old-fashioned prejudices. Its advance is irresistible. Every engineering firm which produces smoke-abating appliances, and every maker of smokeless fuels, should openly associate themselves with this great national reform, by advertising their products in the **only** National Journal devoted to Smoke Abatement.

Enquiries as to advertisement space should be addressed to the publishers :

**THE SERVICE GUILD LTD.**

49, Deansgate, MANCHESTER, 3.

Telephone : BLACKFRIARS 3313.



# THE CAMPAIGN IN MANCHESTER

The first public meeting of a campaign organized by the Manchester, Salford, and District Branch was held in the Lecture Theatre at the Central Library, Manchester, on Tuesday evening, April 2nd, when lantern slides illustrating "The Re-making of Manchester," were shown by Mr. Leonard Heywood, A.R.I.B.A., the Housing Director, and Mr. Arnold Marsh, the chair being taken by Councillor Miss M. L. Kingsmill Jones.

The meeting which had been well advertised, was attended by some 120 people and an interesting discussion ensued, the trend of which was that while industrial smoke had come largely under control and might, in the near future, be even more completely dealt with by a statutory regional committee, there was a real need for dealing with the immense output of smoke from dwelling-house and city offices. It was suggested that the time had come for the City Council to take definite action in this matter and even to obtain an extension of its legal powers in order to promote bye-laws con-

trolling the burning of raw coal so as to emit smoke, more particularly from business areas in the centre of the city.

Miss D. Foster Jeffrey, who with Miss Gibson, is organizing the campaign, announced that further meetings of the branch would be held, including one at which a lecture would be given on the interesting subject of "Railway Electrification." A letter appealing for support and accompanied by the Society's leaflet on the importance of smoke abatement has been sent to some 500 of the more prominent citizens, and as funds permit further efforts will be made to enlist the interest of all responsible persons in the area. Several applications for membership have been received. It is hoped to report the progress of the Branch in succeeding issues of the *Journal*. Intending members and others requiring information should write to the Organizing Secretary, c/o Miss D. Foster Jeffrey, 6, St. Ann's Passage, Manchester, 2.

---

## NEWS AND VIEWS

### Publications Received.

20th Report on the Investigation of Atmospheric Pollution, Department of Scientific and Industrial Research. H.M. Stationery Office, 5/-.

Town Gas for Vitreous Enamelling. British Commercial Gas Association.

Gas in Housing, No. 3. British Commercial Gas Association.

"Smoke." Monthly issues of the Bulletin of the Smoke Prevention Association, Inc., Chicago.

"Recherches sur la Pollution de l'Atmosphère par les Foyers Domestiques," par Edm. Leclerc. Extract from the *Revue Universelle des Mines*, 1935.

### News from U.S.A.

The 29th Annual Convention of the American Smoke Prevention Association will be held in St. Louis, from June 4th to 7th. Five aspects of the problem are to be considered: the health problem, efficiency in fuel-burning equipment, promotional work, scientific progress in the field, and enforcement of smoke-regulating ordinances.

It is reported that smoke abatement campaigns conducted by the city of Chicago during the last four years have reduced the city's dust fall from 390 tons per square mile per month in 1930, to an average of 95 tons a month in 1934.

The influence that the new industry of air-conditioning is likely to have upon smoke abatement was stressed by W. E. E. Koepler at a Cincinnati meeting. "Bad coffee," he said "is grounds for divorce and foul water starts a letter to the Mayor of the city. How particular we are about these things, yet how careless we are about the air we breathe. We take in air about eighteen times a minute, more or less and take in several cubic feet of it at a time; and we do this whether we are awake or asleep. How much do you know about the air you breathe? Not much; but you are beginning to learn.

"The most outstanding thing at the Chicago World's Fair to me was the progress made by air-conditioning. Everybody saw some of the displays featuring this new industry. Many have become clean-air-conscious, as they say in Washington language, as the results of the efforts made at the Fair to sell air-conditioning.

"It is a safe prediction that this new industry will affect enough other industries, principally all of the building trades, to make another boom in building to include a real estate boom, too. It seems equally clear that the people that can adopt and put over as big an idea as air-conditioning in our factories, offices and residences, are also going to demand that an industry guilty of being a part to atmospheric pollution outside shall also mend its ways or go out of business."





*The Gas Works Yesterday*

&



THE GAS WORKS TODAY

... the difference ...

## GLOVER-WEST VERTICAL RETORTS

**T**HE smoke evil shrinks as gas consumption grows and methods of gas usage develop. **At the point of manufacture the smoke evil need not exist.** The gas works pictured on the right is equipped with Glover-West vertical retorts. Gas production is proceeding normally. There are no outward signs because carbonizing here is a totally-enclosed process. Like 260 others throughout the world, this undertaking enhances its claim to be the community's principal weapon against atmospheric pollution.

*for a smoke-free Gas Works...*

# West's Carbonizing Systems

WEST'S GAS IMPROVEMENT CO., LTD.

MILES PLATTING MANCHESTER, 10



### Manchester's Yellow Blanket.

"On Sunday, 40 members of the City News Fellowship had a clear demonstration of how smoke and soot pollute the air of the city. Manchester wore a blanket of yellow fog, yet Alderley Edge greeted us with a thin white mist, which soon rolled away as the sun broke through."—Extract from a report of an outing into Cheshire in the *Manchester City News*.

### Chimney Cleaning on the Tyne.

The following letter, published in the *Evening Chronicle and Evening World*, Newcastle-upon-Tyne, is worth quoting in full :

"In Benwell, Spring is heralded not by bursting buds and the singing of birds, but by the advent of the Benwell sweep. As night approaches your eyes and nostrils are assailed by thick bluey clouds of smoke and sulphurous gases. He is at work.

"The Benwell chap is not one of those old-fashioned fogies who go about with a bundle of long sticks, and a big sack and after threequarters of an hour's work in your house, leaves a film of soot all over the place. Not he. He takes a daily newspaper, taking care he has cut out the crossword and picture puzzles, stuffs it

up the chimney and applies a match. There is a flame, and a roaring for a few minutes, and it makes a good job, not a particle of soot in the whole flue. All the dirt has gone into his neighbours' backyards.

"If the authorities would put a few more policemen on patrol duty it would do a great deal to stop this sort of thing.—Resident."

### Smoke over Wythenshawe.

A criticism of Manchester's lack of courage in not insisting on the more extensive use of smokeless fuels in the "satellite town of Wythenshawe," was made by Colonel W. M. Carr, engineer and general manager of the Stretford and District Gas Board, at the annual lunch of the Manchester District Association of Gas Engineers.

"It is a perfect scandal to see in the early morning the smoke pall hanging over the new housing estate," he stated. "What was a beautiful rural area has been absolutely destroyed." He hoped the public administrators of Manchester would some morning look over from the high ground and see what he had seen. "Then they will realize what a mistake they have made," he added.

---

## EXAMINATIONS IN BOILER-HOUSE PRACTICE

### THE "CITY AND GUILDS" SYLLABUS

A resolution passed by the Executive Committee of the Society in July, 1932, stated that "it would be valuable work for the Society to take steps which would lead to a co-ordination of courses of instruction for stokers with the possibility of subsequently forming a national body which would be able to issue a national certificate to qualified stokers."

It has taken a long time for this proposal to take effect, but the scheme is at last in being. After various meetings of smoke abatement, technical, and educational bodies, the holding of examinations and the issue of a national certificate has been undertaken by the well-known City and Guilds of London Institute. The syllabus which is now available, has been drawn up by the Institute's Advisory Committee on Boiler-House Practice, upon which the Society and the Regional Committees are represented.

The examinations will be held at centres throughout the country, but this will not in any way supersede the present examinations or certificates of local smoke abatement or technical bodies. These will continue and will in effect constitute an intermediate stage in relation

to which the City and Guilds examinations will be the final stage.

The introduction to the syllabus states that "the examination is intended for firemen, boiler attendants, engineers, and others who seek to improve their qualifications with a view to attaining to the more responsible positions in connection with the supervision and management of boilers."

From the Society's strictly smoke abatement point of view this is desirable for the purpose of creating a generally higher standard of boiler control, which implies greater efficiency and consequently less smoke. The new examination and certificate represents the final and national stage of this desirable educational movement, but it will not be as valuable as it might be unless the area covered by elementary courses can be considerably extended. Ways and means of doing this are to be considered by the Executive Committee of the Society.

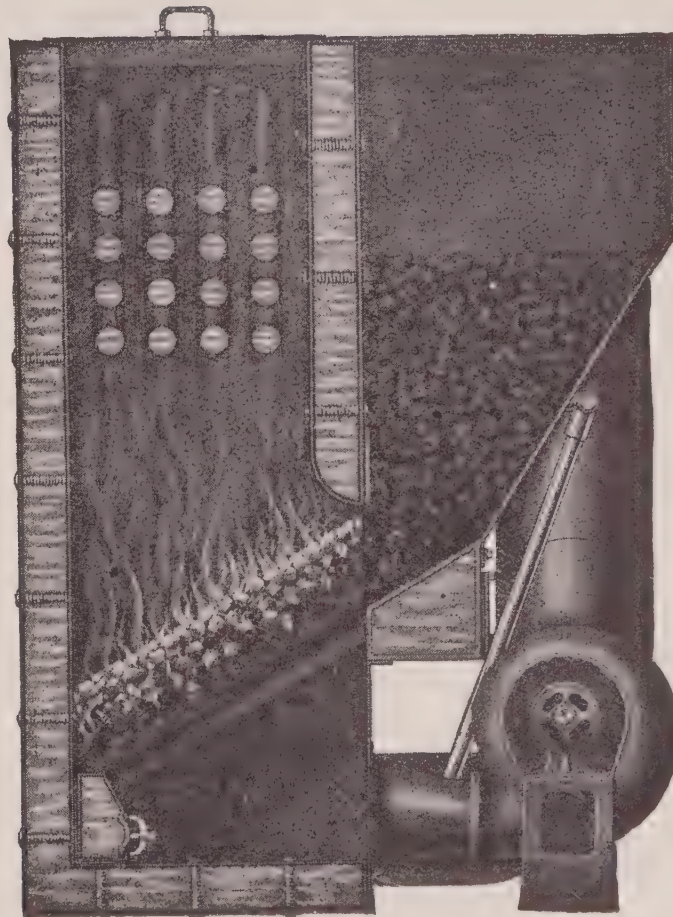
Copies of the syllabus may be obtained from the Society, or direct from the Department of Technology, City and Guilds of London Institute, 31, Brechin Place, South Kensington, S.W.7.



# THE LATEST & FINEST CENTRAL HEATING BOILER in the WORLD

## *The Manda Ray Automatic Boiler*

Prov. Pat. 14004/34.



Guaranteed  
75%  
Thermal  
Efficiency

—All Sizes—  
90,000 B.T.U.  
per hour to  
1,500,000 B.T.U.  
per hour

Absolutely  
Smokeless

Briefly the "Manda Ray" Boiler includes the following revolutionary features superbly designed in one very compact and attractive whole.

- |                                  |   |
|----------------------------------|---|
| 1 Automatic Stoking.             | 7 Highest Thermal Efficiency.             |
| 2 Automatic Draught Control.     | 8 Ease of Installation.                   |
| 3 Automatic Temperature Control. | 9 Minimum Space Occupied.                 |
| 4 Preheated Air for Combustion.  | 10 Burns Solid Fuel.                      |
| 5 Minimum Attention.             | 11 Most Attractive Appearance and Finish. |
| 6 Reliability.                   | 12 British Throughout.                    |

WRITE NOW FOR FURTHER PARTICULARS

## BRITISH HEATING INDUSTRIES Ltd.

Head Office : Bee Hive Works, Bolton. London Office : Africa House, Kingsway  
Birmingham Office : Exchange Buildings, New Street, 2.



# ATMOSPHERIC POLLUTION

## THE D.S.I.R. REPORT FOR 1933-34

The 20th Annual Report of the Investigation of Atmospheric Pollution for the year ended 31st March, 1934 (H.M. Stationery Office, 5/- net) has just been received. During the year 91 deposit gauges, 11 automatic filters, and 11 sets of apparatus for the volumetric determination of sulphur gases were in use.

The Report of the Standing Conference, with which the volume opens, states that a new method, suggested by Dr. Dobson, for the measurement of daylight, has been developed. In this, light taken from the whole of the sky falls on a photo-electric cell and the current generated is used to charge a condenser, which, when it attains a certain potential, discharges through a neon lamp. The number of flashes of the lamp, which are counted automatically, provides a measure of the amount of light received. There is reason to hope that this method may before long be brought to the point when it can be recommended to the co-operating authorities.

Data obtained from the exposure of deposit gauges have now been in process of collection for nearly twenty years, and a considerable body of detailed information has thereby accumulated. The trend of the results is brought out from year to year in the annual reports, but the Conference welcome the proposal, made by the Research Committee during the year of reports, to subject the data as a whole to more detailed statistical examination. Only by critical examination of that nature, is it possible to assess the full significance of results obtained at no inconsiderable expense, and to tell the real story of progress with smoke abatement.

An interesting item is a comparison of pollution in London and Philadelphia. Preliminary observations in the American city, using the same methods as those developed in England, show that for the two months, February and March, 1934, there was a considerably higher deposit in Philadelphia than in London. The total solids, average for ten stations in each case, were 2,111 metric tons per hundred square kilometres in London, and 3,540 in Philadelphia.

### Deposit Gauge Records.

The comparison of the present figures with the general average shows that on the whole there has been a general, although slight, improvement in conditions. There has been a reduction in all constituents, except tar, at the majority of stations. Tar, however, shows a reduction only in 19 cases, an increase in 21, and no difference in 10. The complete comparison is as follows :

	No. of Stations showing Reduction	No. of Stations showing Increase	No. of Stations showing no Difference
Insoluble Matter—			
Tar .. ..	19	21	10
Carbonaceous other than Tar ..	34	15	2
Ash .. ..	35	16	0
Soluble matter—			
Loss on Ignition	44	7	0
Ash .. ..	46	5	0
Total Solids ..	45	8	0
Included in Soluble matter—			
Sulphates ..	41	5	0
Chlorine ..	42	6	0
Ammonia ..	32	8	8

For a full examination of the deposits obtained at each of the stations it is necessary to refer to the report. For general purposes it will suffice to give the total deposit for the year, once again in English units, which are more generally understandable by the public. The figures, in tons per square mile, for each of the stations for the twelve months ended March 31st, 1934, are as follows :

### London

Archbishop's Park .. ..	339
Finsbury Park .. ..	368
Golden Lane .. ..	632
Horseferry Road .. ..	392
Kew Observatory, " N "	113
" " " S "	118
Mount Street .. ..	265
South Kensington .. ..	187
Southwark Park .. ..	238
Victoria Park .. ..	221
Wandsworth Common .. ..	176
King Charles Street .. ..	222
Ashington, High Street .. ..	403
Birmingham, Great Charles Street .. ..	207
West Heath .. ..	181
Bournville, Village .. ..	93
Works .. ..	123

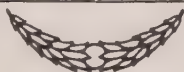


FOR CLEAN AIR AND  
MAXIMUM SUNLIGHT

USE THE SMOKELESS COAL  
NATURE HAS HERSELF PROVIDED

# ANTHRACITE

---



ABSOLUTELY SMOKELESS

HIGHEST IN CARBON, LOWEST IN ASH

VERY SLOW BURNING

SAFE, CLEAN AND ECONOMICAL IN USE

MINIMUM ATTENTION—IT NEVER GOES OUT

THE BEST FUEL FOR—

DOMESTIC HOT WATER BOILERS

CENTRAL HEATING

OFFICE, WAREHOUSE, GREENHOUSE AND GARAGE HEATING



*ENQUIRIES AND DESCRIPTIVE LEAFLETS :—*

**AMALGAMATED ANTHRACITE COLLIERIES LTD.**

81, GRESHAM STREET,  
LONDON, E.C. 2.



Bradford, Central .. .. .	321	Liverpool, Cambridge Street .. .. .	318
North .. .. .	106	Netherfield Road .. .. .	522
Burnley, Bank Hall Hospital .. .. .	209	Loughborough .. .. .	236
Queen's Park .. .. .	315	Marple, Nab Top Sanatorium .. .. .	92
Town Hall .. .. .	427	Newcastle-upon-Tyne, Town Moor .. .. .	231
Cardiff .. .. .	135	Welbeck Reservoir .. .. .	230
Castleford .. .. .	295	Westgate Road .. .. .	260
Coventry .. .. .	562	Rochdale, Town Hall .. .. .	223
Dewsbury, Meadowcroft .. .. .	182	Rothamsted .. .. .	83
Ravensthorpe .. .. .	213	Rotherham, Technical College .. .. .	268
Whitley .. .. .	98	Oakwood Hall Sanatorium .. .. .	157
Edinburgh, Bruntsfield house .. .. .	159	St. Helens .. .. .	309
Leith Links .. .. .	163	Salford, Ladywell Sanatorium .. .. .	183
Princes Street .. .. .	324	Peel Park .. .. .	231
Garston (nr. Watford) .. .. .	107	Sheffield, Attercliffe .. .. .	262
Glasgow, Alexandra Park .. .. .	273	Nether Green .. .. .	90
Bellahouston Park .. .. .	197	Stocksbridge .. .. .	209
Botanic Gardens .. .. .	245	Surrey Street .. .. .	363
Queen's Park .. .. .	162	Shipley .. .. .	188
Richmond Park .. .. .	229	Southampton .. .. .	138
Ruchill Park .. .. .	198	Southport, Bedford Road Park .. .. .	116
Tollcross Park .. .. .	273	Hesketh Park .. .. .	87
Victoria Park .. .. .	230	Marshside .. .. .	204
Gloucester .. .. .	129	Stoke-on-Trent, Leek Road .. .. .	217
Halifax, Akroyd Park .. .. .	131	Longton .. .. .	274
Belle Vue Park .. .. .	143	Wakefield, Clarence Park .. .. .	101
Infirmery .. .. .	121	W.R. Rivers Board .. .. .	235
Wade Street .. .. .	249	Wallsend .. .. .	189
West View Park .. .. .	103		
Huddersfield, Cooper Bridge .. .. .	109		
Kingston-upon-Hull, Central .. .. .	301		
Suburban .. .. .	146		
Leeds, Headingley .. .. .	102		
Hunslet .. .. .	297		
Park Square .. .. .	335		
Temple Newsam .. .. .	87		
York Road .. .. .	275		
Leicester, Humberstone Park .. .. .	139		
Jarvis Street .. .. .	266		
Town Hall .. .. .	291		

It will be seen that the highest deposit was obtained at Golden Lane, London, with a figure of 632 tons. This is double the figure for the previous year, and it is clearly due to some abnormal circumstances. Practically one-half of the year's total was obtained during December and January, and one-third during January.

The lowest figure for the year is gained by Rothamsted, with a deposit of 83 tons to the square mile. Several stations are under the 100 tons line.



## Sulphur.

A good deal of progress was made during the year in the investigation of sulphur impurities in the air. The original, or volumetric, method was continued, and was supplemented by further observations by the lead peroxide method. The latter has now been standardized and is recommended for use by local authorities.

The results indicate Cardiff and Hull as being remarkably free from sulphur pollution, while some of the highest concentrations appear to be at Leicester, (Grey Friars), London (City Hall), Newcastle, and Sheffield (Surrey Street).

## The Automatic Filter.

Thirteen stations are operating the automatic filter—4 in London, 5 in Glasgow, and one each in Cardiff, Coventry, Kew Observatory, and Stoke-on-Trent. The following list shows the days on which definite smoke haze or fog was observed during the winter months (October-March) 1933-34 at any time in the 24 hours on any of the days in which observations were made. Smoke haze is recorded when a concentration of over 2.16 lbs. of impurity is present in a cube of air of 100 yards side.

	Days Observed	Days with Definite Smoke Haze.
London :		
South Kensington	186	.. 42
Victoria Street ..	97	.. 69
Westminster Bridge	157	.. 31
Westminster City Hall	189	.. 140
Kew Observatory ..	192	.. 38
Cardiff .. ..	196	.. 1
Coventry .. ..	196	.. 9
Stoke-on-Trent ..	196	.. 143
Glasgow (average of 5 stations, weekdays only) .. ..	133	.. 25

## Obstruction of UV Radiation.

An interesting appendix to the Report is contributed by Dr. J. R. Ashworth, whose investigations in Rochdale and elsewhere are well-known, especially to members of the N.S.A.S. He has analysed his observations on the obstruction of ultra-violet radiation in and around Rochdale in relation to the direction of the wind, and shows that there is a deficiency of ultra-violet and light rays with winds which have blown over the town carrying with them the town's pollution. Thus with a northerly wind a station on the north side of the town records more radiation than a southern station, and *vice versa*.

He states that no doubt one reason why the West End of a town is generally the best residential area is that these areas are freer from the effects of smoke pollution and enjoy more sunlight and brighter skies since the prevalent winds in this country are from the south and south-west, so that the smoke pollution from the centre of the town is carried to districts to the east and north-east of it.

Visible light rays confirm the results obtained with ultra-violet rays. It is, however, of interest to note that at the south station the deficiency of ultra-violet rays is 29 per cent., but the deficiency of the visible light rays is only 11 per cent., and it may be that this is an indication that ultra-violet rays are more sensitive to the obstructive effect of smoke than the visible rays of light.

## The Missing Towns.

From the list of stations given earlier in this article it will be seen that observations are carried out on thirty-five towns. This is a regrettably low number, especially when much of the value of the figures obtained lies in comparing—within limits—the localities of different characteristics. The investigation is on a national basis and should surely be made as comprehensive as possible by the co-operation of the many important centres which do not at present assist.

The following cities and large towns can be mentioned as those in which observations ought to be made : Manchester, West Ham, Nottingham, Sunderland, Birkenhead, Oldham, Middlesbrough, Stockport, Blackburn, Gateshead, Hendon, Wigan, Warrington, Swansea, Dundee, Aberdeen.

The list could, of course, be considerably extended, but these are districts which, by reason of their size or the known state of their atmosphere, should seriously consider co-operating in the D.S.I.R. investigation.

Manchester contributes £50 a year to the work of the Committee, but does not send in any observations. It has carried out many useful investigations of its own, but as it is the only city of over 300,000 population not represented in these Reports, one feels that its absence is particularly unfortunate.

## A By-Product Without Value.

It used to be said that a great deal of smoke over a city was a good sign, because it indicated the production and use of power. It is known now that the power can be produced without the smoke, which in itself is a needless injury. It will be found true that activity can be had without a great deal of noise. If the noise measures the volume, the noisiest city in the world would be the most prosperous one. But noise, like smoke, is a by-product without value.—*From an editorial of the Chicago Tribune.*



# KEMPTON'S

## "KAYE" COKE FIRES

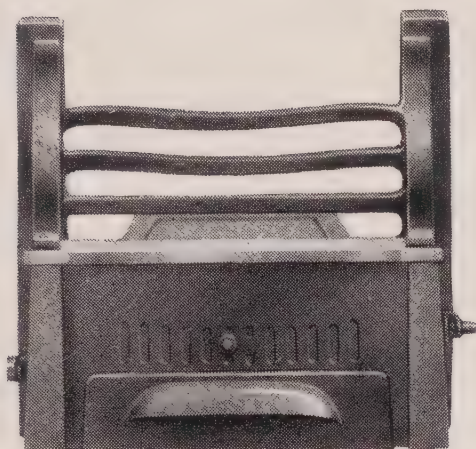
are specially designed for the efficient burning of Coke.

ALL Models fitted with the patent Rocking Bar attachment for ensuring a glowing fire.

No paper or wood required, as the fires are ignited by a gas burner.

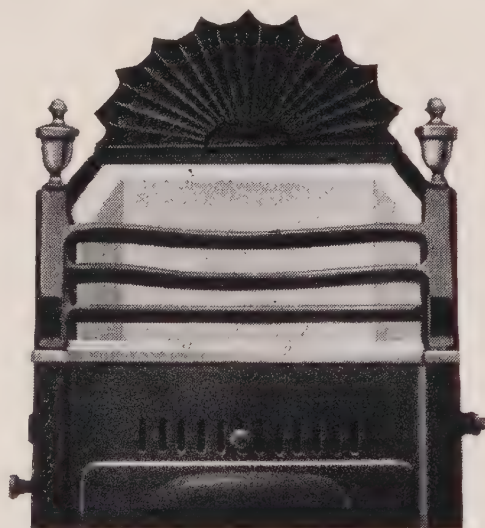
"KAYE" fires are economical to instal and maintain, and are labour saving.

COKE is cheaper than coal, clean to handle, and DOES AWAY WITH CHIMNEY SWEEPING.



"KAYE" No. 1 ADAPTER MODEL.

This fire can be fitted to any existing surround, whether iron or tiles. The surround is not interfered with in any way, only the firebricks being removed. New bricks, in sets of six are supplied for use with this pattern.



"KAYE" No. 4 BASKET MODEL.

This fire is suitable for use in a recessed fireplace with an open flue. No fixing is required.

"KAYE" Fires are made in many different styles : Complete fireplaces, Inset type, Basket, Independent, with Boiler, etc.

*Write or Telephone to :-*

**C. H. KEMPTON & CO., LTD.**  
**70 & 72 BENNERLEY ROAD, S.W.11.**

Phones : BATTERSEA 4991 (3 lines)

Head Office :-

**STANGATE HOUSE, 235 WESTMINSTER BRIDGE ROAD, S.E.1.**

Phones : HOP 3743/5535

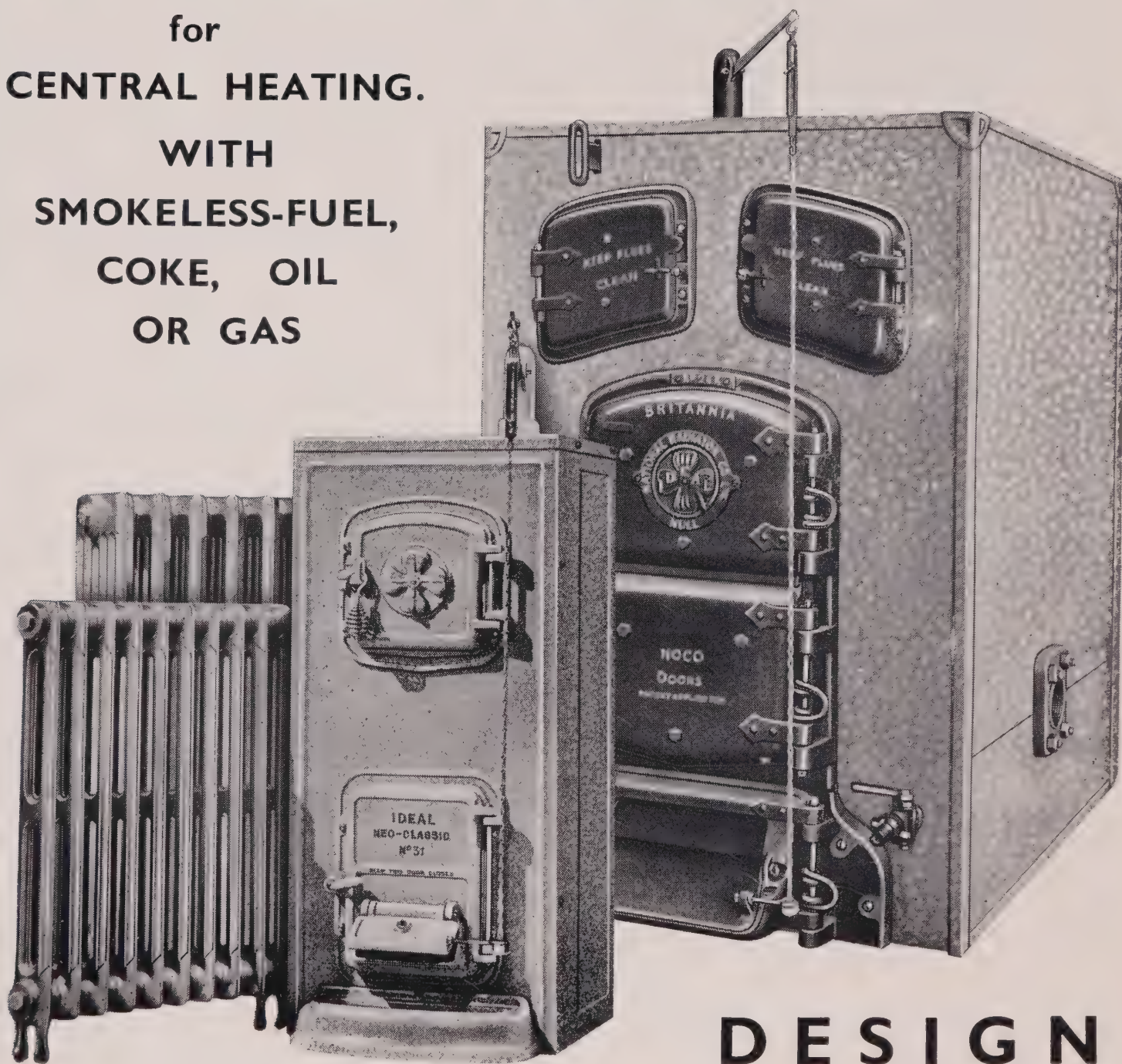


# IDEAL

## BOILERS & RADIATORS

for  
CENTRAL HEATING.

WITH  
SMOKELESS-FUEL,  
COKE, OIL  
OR GAS



*Write for particulars, post-free*

**IDEAL BOILERS & RADIATORS**

LIMITED

IDEAL WORKS, HULL, YORKS.

**DESIGN  
ECONOMY  
QUALITY  
SERVICE**

Showrooms—London : Ideal House Great Marlborough St., W.1. Birmingham : 35 Paradise St. Also at Hull





Walthamstow

Capt. Alfred G. Buckham, F.R.P.S.

# THE JOURNAL OF THE NATIONAL SMOKE ABATEMENT SOCIETY

---

VOL. VI.  
NO. 23.

AUGUST  
1935

PUBLISHED  
QUARTERLY  
2/6 a year



# WARMTH WITHOUT SMOKE

---

COAL, COKE, GAS, OIL or 'ELECTRICITY'?

---

CONSULT

## SAUNDERS & TAYLOR LTD.

Warming, Ventilating and General Engineers

Praed Rd. Trafford Park,  
MANCHESTER

Telephone TRA 1006

11 Dyers' Buildings,  
H O L B O R N ,  
LONDON, E.C. 1.

Telephone Holborn 9931

# THE SERVICE GUILD LTD.

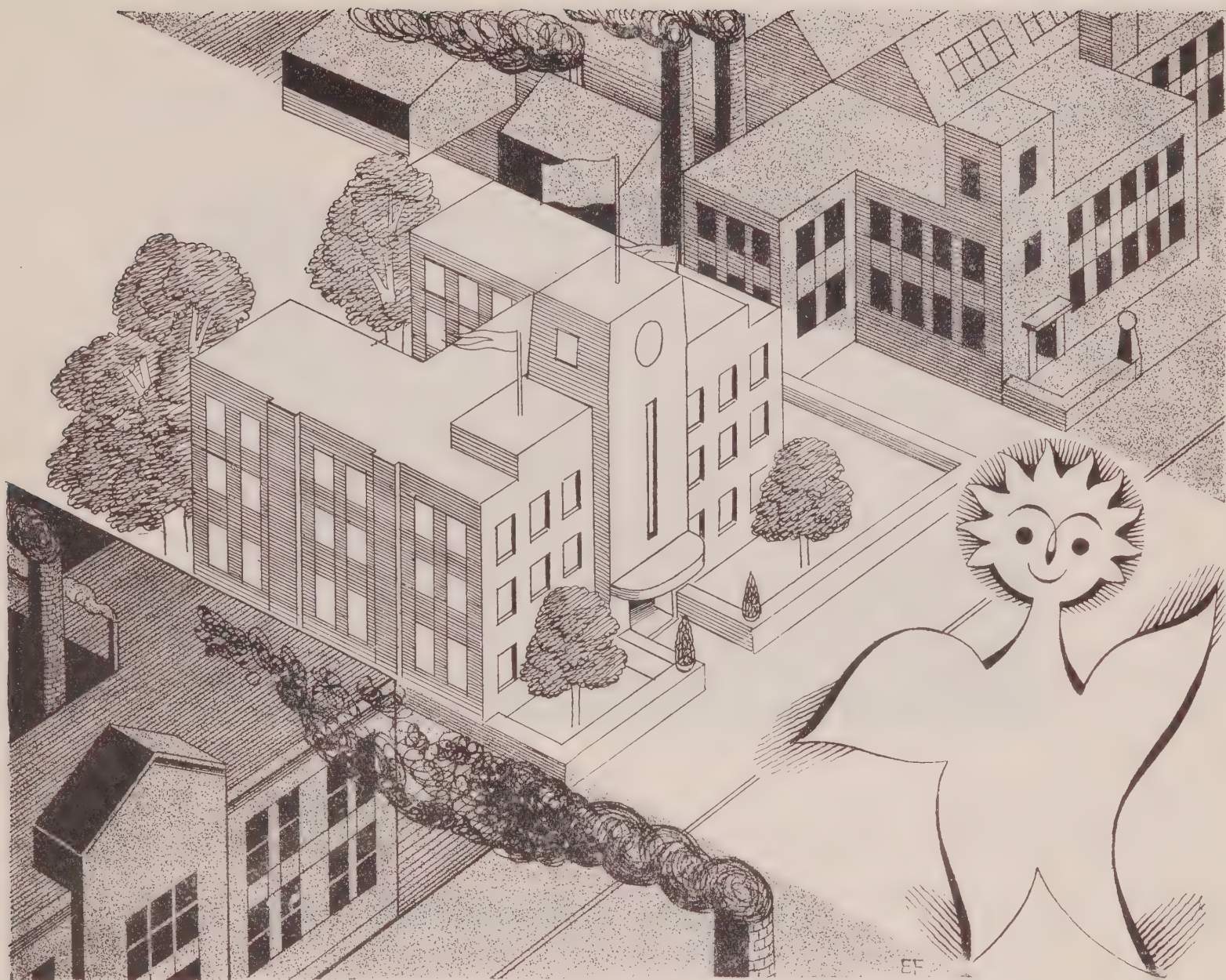
The Publishers of this Journal will be pleased to hear from any Professional or Trade Society, or other Organisation that is desirous of issuing a YEAR BOOK without any cost. We have special facilities for giving this service, which is successfully carried out for various other Associations.

*ENQUIRIES should  
be addressed to—*

THE SERVICE GUILD LTD.,  
49, DEANS GATE - MANCHESTER, 3

Telephone : BLAckfriars 3313





# “ALL CLEAR”

says Mr. **THERM**

The case for gas is clear. It does not foul the air — what is more, it means a clean factory, better working conditions, and no fly ash to damage equipment.

Moreover, on economic grounds, gas is the logical way to use the power of our coal. Of all the processes of coal treatment, gas manufacture extracts the largest proportion of useful products from its raw material.

*For literature on gas in relation to smoke abatement, please write to the*

**BRITISH COMMERCIAL GAS ASSOCIATION, 28 GROSVENOR GARDENS, LONDON, S.W.1.**

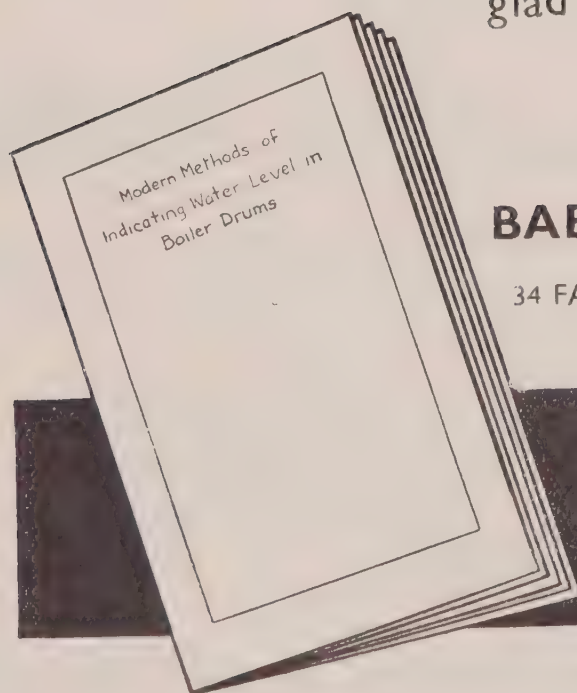


---

---

# Modern Methods of Indicating Water Level in Boiler Drums . . . .

is the title of a reprint  
of a technical paper  
article which we shall be  
glad to send on request.



**BABCOCK & WILCOX**  
LIMITED  
34 FARRINGTON ST., LONDON, E.C.4

*Rytad*



# The Journal of the National Smoke Abatement Society

Editor : ARNOLD MARSH, M.Sc.Tech.

Editorial Office :  
36, King Street,  
Manchester, 2.

Telephone : Blackfriars 0896.



Advertisement Office :  
The Service Guild Ltd.,  
49, Deansgate, Manchester, 3

Telephone : Blackfriars 3313

Vol. 6. No. 23.

August, 1935.

## Principal Contents.

	Page		Page
Commentary .. .. .	59	Railway Electrification and Smoke Abatement, by E. W. Ashcroft. . . . .	77
Smoke Abatement in Greater London, by H. G. Clinch .. .. .	61	Liquid Fuels .. .. .	81
Professor J. B. Cohen .. .. .	67	The Domestic Coke Market, by Mr. J. Roberts	82
The Manchester Corporation Report ..	69	News and Views .. .. .	83
Press Cuttings .. .. .	73	The Grit Emission Resolution .. .. .	84

The Journal is open for free discussion of all aspects of the smoke problem, and the opinions expressed in contributed articles are not necessarily the same as the views of the Society. Quotations and abstraction of matter appearing in the Journal is welcomed, provided the usual acknowledgments are made.

## COMMENTARY

ONE of the most interesting features of the work at the Society's offices is the reading and recording of the press-cuttings that arrive in their neat brown wrappers almost every day. Not infrequently they are amusing, and often gratifying or encouraging. They are an index of the trend of public opinion, which, if numbers are any guide, is yearly becoming more and more concerned with the state of the air. From time to time there is a spate of interesting cuttings, as there has been during the past few weeks ; and when this happens a page or two of the *Journal* will be devoted to a selection from them ; under the heading "Press Cuttings." It will be noted that a number of those reprinted in this issue are editorial comments on the Smoke and Aviation Conference—one indication of how seriously this meeting has been taken. Other opinions, not editorial, are included because they help and strengthen the case for smoke abatement

by demonstrating the weakness of the arguments of those who, for one peculiar reason or another, prefer a foul atmosphere to a clean one.

A report containing the splendid papers read at the Smoke and Aviation Conference is now available, with photographs and diagrams, at the price of one shilling. This aspect of the smoke problem is hardly realized by the landsman who has never been up, but the airman takes it very seriously, and so do all who have viewed our towns from above. One feels that if birds can think they cannot have a very high opinion of our hygienic principles. It cannot possibly be said that we are giving publicity to this subject just because it makes good propaganda. It is a serious problem, and the Society and other smoke abatement bodies must take it seriously, and use the evidence, as Dr. Lessing suggested in the discussion, as much as we possibly can.



The photograph on the cover of this *Journal*, for example, is one of the most striking pieces of propaganda imaginable. It is, of course, one of Captain Alfred Buckham's, and was one of the many he exhibited at the meeting. Further examples of his work—or rather, art—appear inside and on the cover of the conference report, and are the most eloquent pleas for smoke abatement. But Captain Buckham tells us that, most unfortunately from our point of view, he has from time to time scrapped even more effective negatives because the smoke on them hid practically everything else!

---

Extracts are given in this issue from the most important report on smokeless fuels (including gas and electricity) recently presented by a special sub-committee to the Manchester Corporation. It was adopted by the Council without a single dissentient voice. The recommendations it makes are not in any way sensational; they do not promise a smokeless city within a year; but they are reasonable and judicial. The report is, in fact, a kind of interim report, and we shall have to wait until the recommended trials are completed before expressing the hope that the Corporation will go further, much further, along the road they have at last entered. In the meantime though, and withstanding the temptation to quote old tags about what Manchester has done to-day, this action of Manchester's should be copied by every other city; and we hope that all municipal representatives who read these notes will see that a resolution similar to the one on which the Manchester report is based, is proposed in their own Councils. A limited number of copies of the report are available at the Society's offices, and will be sent, as far as possible, to any reader on request.

---

The photograph is being used more and more, with great effect, for propaganda of all kinds, and we are finding that we need an ample and diverse collection with which to illustrate our

publications, and to use for exhibition purposes. Not so much is it photographs baldly illustrating a chimney or a canopy of smoke that are required, but photographs with a compelling propaganda idea plus high pictorial quality. There are only too few of the nature of the print that appears on the cover of this *Journal*. With a view therefore to obtaining such photographs, and at the same time interesting the photographic world, professional and amateur, in smoke abatement, it has been decided to hold an open Photographic Competition and Exhibition, the entries for which will be judged by their effectiveness as smoke abatement propaganda. A first exhibition of entries will be held in Manchester, in the studio of the Manchester Amateur Photographic Society, in January of next year, and if successful, at other places later. No doubt some of the winning entries will in due course appear on the cover of this magazine. We do not know how many of the members of the Society are photographers, but they are eligible to enter and to try to win a prize. Full particulars of the scheme may be obtained on application.

---

There was one aspect of the Jubilee celebrations that could not have escaped the attention of anyone, although its implications were probably realized by few. That is, the gaiety and colour of our towns. There must have been a phenomenal amount of painting and stone-cleaning, and the decorations were, for their short lives, vivid and attractive. The drabness and gloom of the majority of our buildings seemed to sink into the background, and colour, cheerfulness, and genial warmth pervaded our streets. Jubilee day itself was warm and sunny; works were closed; everyone was out, and therefore the fires were out too. The atmosphere was clean and comparatively smokeless. For one day the country approached the delightful brightness and colourful sparkle it ought always to have, and will have when we cease to use the atmosphere as a public sewer.



# SMOKE ABATEMENT IN GREATER LONDON

BY H. G. CLINCH, F.S.I.A., M.R.S.I.

(CHIEF SANITARY INSPECTOR, WEST HAM COUNTY BOROUGH)

*The smoke nuisance varies from district to district throughout the country, not only in its nature and extent, but in the way it is regarded and is being tackled by public and municipal opinion. This is the first of a series of articles which will deal with these regional differences and special problems.*

The Editor informs me that he proposes to publish a series of articles on Smoke Abatement dealing with different areas of the country and it has fallen to my lot to deal with Greater London.

Let it then be frankly admitted that one would have considerable difficulty in convincing the average Londoner of the existence of a smoke problem. His mind would visualize the annoyance caused by his misguided neighbour who, at the prompting of our over zealous colleagues of the cleansing departments, burns his refuse to save his rates, but selects Sunday mornings for the purpose. Sanitary Inspectors, please don't do it !

Take my own case. After spending years of service in the West Riding where I fumed and raged, lectured and wrote, implored, begged and cursed, in the interests of smoke abatement, I came to Greater London, and within a week became as sunburnt as if I had spent the week at the seaside. Within nine miles of St. Paul's Cathedral, I now grow roses, clean and possessing the rich colouring of the country-produced flower. I wear only one collar per day instead of the two or three of the West Riding, and light grey suitings remain a light grey.

In the centre of London there are beautiful parks, fine trees and flowers, and the wool of the sheep that keep the grass cropped never acquires that black colouring so characteristic of the north, and this even miles away from the towns. Yet it is a fact that Greater London is an industrial centre of no mean order. The figures revealed by the census of production of 1924 are worthy of close study. (*See table below.*)

Why is it then, that London is so clean as compared with other large towns? Those readers who have travelled by car from London to the north or vice

versa (a) on a Sunday and (b) on a weekday must have been struck by the contrast.

(a)—On a Sunday there is no discernible difference in the state of the atmosphere so far as London is concerned so that industrial smoke has little apparent effect on London's atmosphere. Travelling north by the A.1. road, one notices a difference in the quality of the vegetation a few miles south of Doncaster, with marked difference north of that town. By the A.6. road to Buxton and thence via Glossop to Huddersfield, one notices a complete change within a distance of five miles as we penetrate the smoke drift from Lancashire. Stone walls change from white to black ; white sheep become very dirty sheep, and excluding the effect of the high altitude of the Pennine belt, vegetation is stunted and poor. Continue further, and herein lies a lesson for all who would learn. We left London in a clear atmosphere, but over each of the northern towns we see a very heavy blue haze of smoke which drifts along the valleys and builds up the distressing sky gloom characteristic of Lancashire and Yorkshire. (I am not sure that this blue vapour is ever recorded by soot deposit gauges). This must be domestic smoke and as London's domestic smoke does not produce the same effect, it appears that we must apportion due blame to the open fire of the Yorkshire cooking range, wherein the fire burns at too low a temperature and compares very badly (from a smoke production point of view) with the high temperature fire in the closed-in stove. Continue further north in either Lancashire or Yorkshire and the country again becomes clean, the roadside walls white, and vegetation in a much more healthy condition. On the A.5., the Birmingham belt does not appear to be so heavily smoke-gloomed on a Sunday.

		Gt. Britain.		Greater London		London's Percentage of Great Britain.
Population in 1921..	..	44,019,196	..	7,480,201	..	17.00
No. of Returns ..	..	65,400	..	13,400	..	20.5
Gross Output ..	..	£3,736,000,000	..	£656,000,000	..	17.56
No. of Operatives ..	..	6,677,000	..	941,000	..	14.09
No. of Staff ..	..	629,000	..	143,000	..	22.73
Horse power available ..	..	17,857,000	..	2,039,000	..	11.42
Average output per head ..	..	£224	..	£281	..	125.44



FOR CLEAN AIR AND  
MAXIMUM SUNLIGHT

USE THE SMOKELESS COAL  
NATURE HAS HERSELF PROVIDED

# ANTHRACITE

---



ABSOLUTELY SMOKELESS

HIGHEST IN CARBON, LOWEST IN ASH

VERY SLOW BURNING

SAFE, CLEAN AND ECONOMICAL IN USE

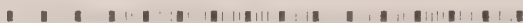
MINIMUM ATTENTION—IT NEVER GOES OUT

THE BEST FUEL FOR—

DOMESTIC HOT WATER BOILERS

CENTRAL HEATING

OFFICE, WAREHOUSE, GREENHOUSE AND GARAGE HEATING



*ENQUIRIES AND DESCRIPTIVE LEAFLETS :—*

**AMALGAMATED ANTHRACITE COLLIERIES LTD.**

11, OLD JEWRY,  
LONDON, E.C. 2.



(b)—Now consider the same journey on a week-day. Here again, one sees very little smoke from the factory chimney in the London area, making due allowance for the fact that there are few to be seen. But see Doncaster and northwards on the A.1., north and north-east of Buxton on the A.6. Here we have the factory chimney, numerous on area, and a smoke of very heavy type which travels miles in a way which is never seen in the London area. These facts are well-known to the traveller by the trunk roads radiating from London to the North.

London and the West Riding.

Now let us study a few figures and we find :—

County of	Population	Houses	Families
London	4,397,003 ..	730,000 ..	1,190,030
West Riding			
of Yorkshire	1,332,000 ..	327,000 ..	Proportion of families occupying separate dwellings, 95.5 per cent.

Now consider Greater London :—

Now an anomaly. In 1933, I made enquiry as to the success or otherwise of classes for stokers with interesting results. (See table on page 65.)

London, then, showed up badly in the way of classes for stokers, except in the case of Acton where success was entirely due to my friend and colleague Mr. Kinch, an enthusiast. As in all branches of the profession, success depends upon the local inspector.

Following contributors will no doubt twit me upon the London fog, and the damage done to the Houses of Parliament and other buildings by smoke. Well, it may be, but if the Houses of Parliament were situated in their towns—however, enough of that. This reminds me of the story of the joiner who, when driving screws in, was heard to be cursing some unfortunate man and when asked for an explanation said : “the man who has to get these screws out will curse me, so I am cursing him to get even.”

But to revert to the serious, it is a fact that I could return to Yorkshire to-day to lecture on smoke and get a hearing but it is impossible to convince the average Londoner that he suffers from smoke. A striking

	Population	Acres	No. of chimneys in connection with boiler plants	No. of chimneys connected with metallurgical works, potteries, etc.	Other Chimneys
Greater London .. ..	7,413,700 ..	292,920 ..	3,200 ..	190 ..	5,800 ..
West Riding of Yorkshire, including all towns ..	1,322,000 ..	344,450 ..	1,880 ..	378 ..	352 ..

It will now be seen at a glance that Greater London has approximately six times the population of the West Riding, is considerably less in area, contains far more factory chimneys, in addition to six times as many domestic chimneys, yet it is a fact that Greater London is immensely superior in cleanliness at any part than either town or country in the West Riding.

London also is growing very rapidly as shown by the fact that the Metropolitan Water Board are supplying 45,000 new houses per annum and the population is increasing by 92,000 persons per annum and of 463 new factories set up in England and Wales in the year 1933, no less than 220 were set up in Greater London.

Supposing now that Londoners in their houses and in their factories produced smoke in due ratio to that produced in Yorkshire, the Midlands or Lancashire, what would London be like to live in? Allowing for the difference in the number of houses and factories, Greater London should produce about seven times the smoke of the West Riding, but God forbid ! Yet it is a fact that more is being done in the West Riding to combat the smoke plague than anywhere else in England. One cannot speak too highly of the West Riding Regional Smoke Abatement Committee.

exception, however, is found at meetings of railway loco men who are exceptionally keen and enthusiastic. On the industrial side, it is generally considered bad from to allow a factory chimney to smoke.

I have purposely refrained from any quotation of soot deposits per square mile, etc., and to inspectors I would still say, as I always have said, spend your time in stopping smoke rather than fritter the days away in measuring it. You know the smoke is there, get to it and stop it, let others measure it. Never forget that you are the only people who can stop it !

Why London is Cleaner.

To sum up : it must be admitted that the London area is altogether cleaner than the industrial midlands and the north, and in fairness we must realize that the factors contributing are :—

1. Climatic conditions for six months of the year in the London area make the use of fires in houses uncomfortable, and this alone compels many thousands of householders to use gas or electric cookers in lieu. In winter the blue haze of domestic smoke is definitely not produced to anything like the same extent as it is in the north.

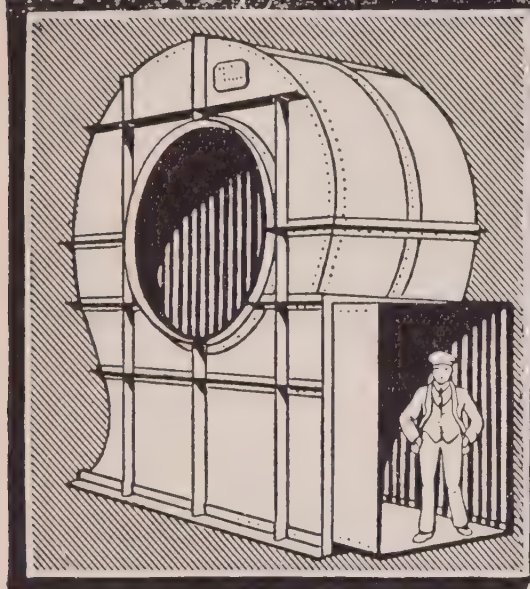


# BOILER EFFICIENCY FUEL ECONOMY

Science never ceases to re-examine old problems. The "Cyclone" system of Induced Draught represents the application of the latest scientific principles.

The "Cyclone" system eliminates the necessity of high temperature in gases passing from the chimney—and thus it eliminates black smoke. This heat (once wasted) is transformed into power, spelling an increase of steam power and a decrease of fuel costs.

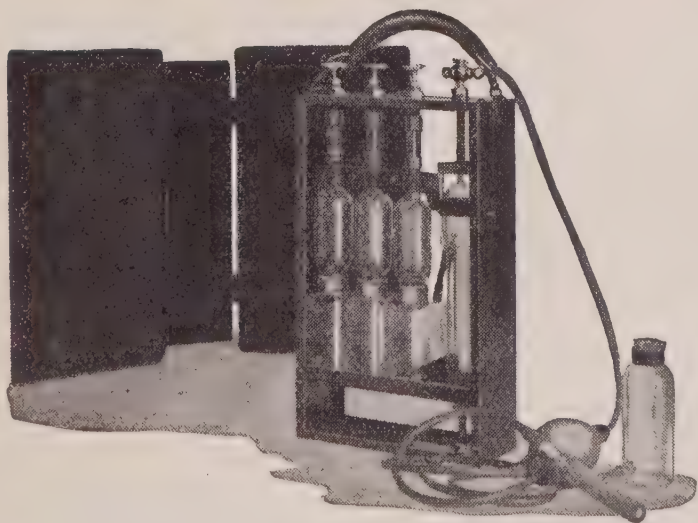
Initial cost of installation is low. Brochure 66 F gives convincing facts—please write for it.



**MATTHEWS  
& YATES LTD**  
SWINTON MANCHESTER

London Office : 20 BEDFORD ROW, W.C. 1

**BLACK SMOKE** indicates  
incomplete combustion



HAYS PORTABLE GAS ANALYSER.

Analysing the Boiler Flue gases with the above analyser will enable you to increase the combustion efficiency and prevent black smoke.

*Full particulars from*

**DUGUIDS LTD., LYMM, Cheshire**

**£ 50 SAVED  
every month**

By USING

**SEOTOO  
FLUE GAS  
CARBURETTORS  
AND "AIRKOOLD"  
GRATE BARS  
IN FURNACES OF TWO  
LANCASHIRE BOILERS**

*For Particulars Apply to :*

**S MOKE P REVENTION L TD.**

**1 Victoria St., London. S.W. 1**

Telephone : VICTORIA 2671



	London L.C.C.	Birmingham	Bradford	Halifax	Huddersfield	Leeds	Leicester	Manchester	Nottingham	Wakefield	Keighley	Acton Greater London	Sheffield and Rotherham Joint Committee
Were classes for Stokers arranged?	Arranged in various centres but no Stokers attended.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
No. of Stokers employed in district.		2,000	500	?	?	600	?	800	?	?	120	185	?
How many entered.	Nil	24	155	25	100	30-200, av. 70	?	134	60	18	14	37	..
Were certs. awarded?	..	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	..
Were Local Manfrs. notified of the course?	..	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	..
Did they encourage employees to attend?	..	Yes	Some did	Yes	Yes	Some paid fees	Majority did	Yes	Yes	Yes in most cases	Few	Yes and paid fees	..
Have they recog. certs. as con- dition of emp. or extra remun.?	..	..	No	No	Yes in several instances	Cert. stressed in ads.	No	In few cases	..	No in- form- ation	Antici- pated	Yes by extra pay or pro- motion	..
Have the classes led to practical improvement?	..	Not poss. to say	Yes defin- itely.	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	Yes	Yes	..

\* 1924, 50 tons soot per sq. mile : 1931, 15 tons soot per sq. mile.



---

---

# **I**nstall a **COKE** **Boiler for Comfort** ***with* economy**

A Coke Boiler helps to bring the "labour-saving" Home within the reach of the slender purse.

For a few pence a day, just the price of a scuttleful of Coke, you can have constant hot water in Bathroom, Bedrooms and Kitchen, *plus* a radiator or two to keep Hall and Dining Room warm and the whole house damp-free.

Get in touch with your Gas Company; they will give you free, helpful advice on the choice of a suitable boiler and will carry out the installation if you wish (the cost can be paid by instalments) . . . . or write for a free illustrated Brochure to:—

**THE LONDON & COUNTIES**  
**COKE ASSOCIATION,**  
**9 GROSVENOR GARDENS, LONDON, S.W.1**



2. The cheap price of electricity for domestic purposes and the intensive and never ceasing competition between the electricity undertakings and the Gas Light and Coke Company.
3. The increased price of coal in London as compared with the north, discourages its use.
4. Industry in London is, generally speaking, of a less smoke-producing nature.

The obvious remedy then is to sell gas and electricity and solid smokeless fuel at cheap rates, in fact, make smokeless methods in the home a paying proposition. This is but common sense. Another aspect is that in the case of publicly owned undertakings, there can be no excuse for the withdrawal of huge profits from gas or electricity for the relief of the general ratepayer ; it is morally wrong.

West Ham sells electricity at 1½d. per unit and in this price provides and maintains cookers and lamps after an initial payment of only 5s. for the cooker and 7d. for each point installed. There are now 6,544 electric cookers in what is essentially a working class district of approximately 50,000 houses, and one rarely enters a house without seeing either a gas or electric cooker in use.

On the steam production side, it should now be sufficiently well-known that smoke abatement is good business. Make the same apply to the domestic user, and life will become more pleasant for everybody.

Stop telling people it is naughty to produce smoke, make it pay them to stop it. Dream of clean skies, but be practical and do something to achieve that ideal.

(Copyright Reserved)

---

## PROFESSOR J. B. COHEN

In the regretted death of Professor Julius Berend Cohen, F.R.S., which occurred at his home at Coniston on June 14th, the Society has lost a Vice-President whose studies of the smoke problem and contributions to its understanding have been of inestimable value.

Until his retirement in 1924 he was Professor of Organic Chemistry at the University of Leeds, and it was in and around that city that he conducted numerous experiments upon the nature and effects of smoke. Many of these are described in the book written by him and Dr. Ruston, with the title "Smoke." The investigations described upon the effects of smoke upon vegetation were, and still are, of major importance, and fully deserve the adjective "classical." They measured, more scientifically than had before been attempted, the precise interference with the growth and health of plants caused by a polluted atmosphere. Many other experiments were initiated and carried out by Professor Cohen, and "Smoke" remains one of the indispensable text-books on the subject.

Professor Cohen was a member of the Departmental Committee on Smoke and Noxious Vapours Abatement, and retained his interest in the subject and in the Society until his death. Characteristically, and showing his feelings towards cleanliness and amenity, the last communication by him read by the writer was a letter in the "Manchester Guardian," giving statistical evidence of the amount of litter deposited on the shores of Coniston Water after a Bank Holiday.

To the several branches of organic chemistry he made a large number of original contributions, while his text-books are used by students all over the world. In 1911 he was elected F.R.S., was a member of the Chemotherapy Committee of the Medical Research Committee, 1924-32, and an associate member of the Chemical Warfare Committee. He took a keen interest in the welfare of the Working Men's Club in East Leeds, was a musician and artist of exceptional taste and skill, and an enthusiastic gardener.

---

### A Chestnut Nuisance.

An unusual smoke nuisance case was heard recently at the North London Police Court, when it was alleged that the defendant carried on his business in premises that had formerly been a garage, and that furnaces were used for the roasting of chestnuts to be sold later in the streets. Large quantities of smoke were emitted and numerous complaints had been received. The magistrate made an order for the abatement of the nuisance within 14 days.

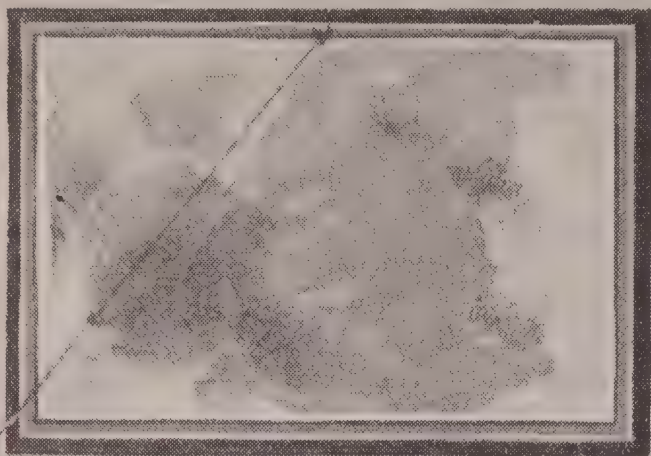
"Air is for Us to Brethe."

A correspondent kindly sends us a newspaper cutting from the last century, which contains a curious set of verses of complaint taken from an American paper.

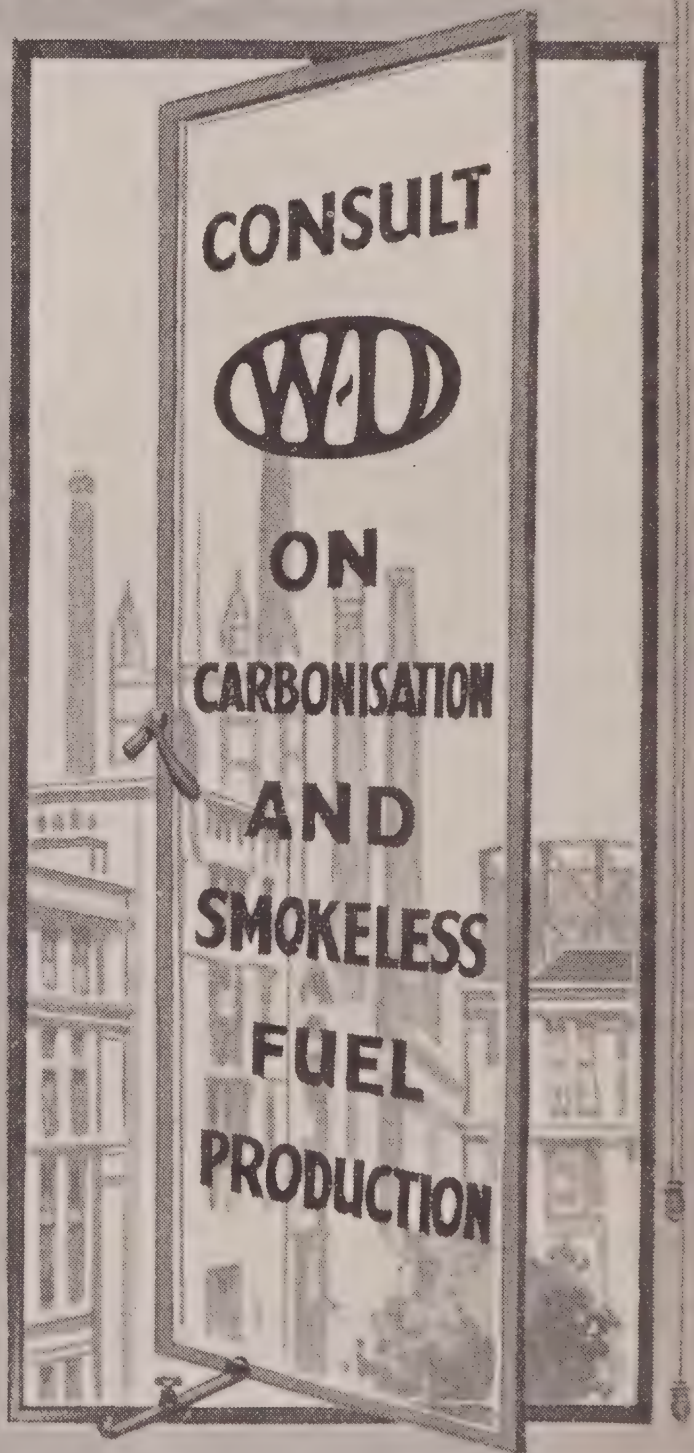
The writer appeals to the "Sexant" of his chapel to give them fresh air during the services—"U shet up 500 men, wimmin, and children, Speshally the latter, up in a tite place." It is a question of ventilation rather than smoke abatement, but some of the lines will appeal to the readers of this Journal :—

*"O sextant, doant you no our lungs is belluses,  
To blo the fier of life and keep it from  
Goin out ? and how can belluses blo without wind ?  
And aint wind air ? i put it to your conschens.  
Air is the same to us, as milk to babes,  
Or water is to fish, or pendlums to clox,  
Or roots and airbs unto an injun doctor,  
Or little pills unto an o-me-path."*





**OUR IDEAL -  
A SMOKELESS  
CITY**



**CONSULT**



**ON  
CARBONISATION  
AND  
SMOKELESS  
FUEL  
PRODUCTION**

THE WOODALL-DUCKHAM VERTICAL RETORT & OVEN  
CONSTRUCTION COMPANY (1920) LIMITED  
EBURY & ALLINGTON HOUSES, 136-150 VICTORIA ST., LONDON, S.W.1



## THE MANCHESTER CORPORATION REPORT IMPORTANT MUNICIPAL RECOMMENDATIONS

The recently adopted report of a special sub-committee of the Manchester Corporation on "Smokeless Fuels (including Gas and Electricity)" is mentioned in the Commentary on page 59. A number of extracts from the report, including the recommendations made, are given below, but naturally represent only a fraction of the complete report.

### The Resolution.

At the meeting of the General and Parliamentary Committee on the 14th November, 1934, a Special Sub-Committee, consisting of the Chairman (Alderman Noton Barclay), the Deputy-Chairman (Alderman Swales), and Aldermen Binns, Jackson, Sir William Kay, and Melland, was appointed to consider and report upon the following resolution adopted by the City Council on the 31st October, 1934, viz. :—

That the General and Parliamentary Committee be requested to consider and report upon the desirability and practicability of making available to the public smokeless fuels, including gas and electricity, at such cost (not including a charge upon the rates) in relation to raw coals as will permit their use in preference to coal, and thus make a definite contribution to a cleaner atmosphere.

Your Committee invited by Councillor Clapham, who moved the foregoing resolution in the Council, to join them in their deliberations.

### Desirability Accepted.

The resolution referred to your Committee raises in the first place the question of the *desirability* of making available to the public smokeless fuels (including gas and electricity). The Committee feels that the case for abatement or abolition of the smoke nuisance has been so fully discussed in recent years that it is unnecessary to go into any great detail as to the evidence upon which the desirability of such an object is founded.

### Gas.

The Manchester Corporation Gas Department is taking many practical steps to encourage the use of gas as an alternative to raw coal in the cause of smoke abatement. In the domestic sphere, where the household chimney is one of the chief causes of smoke pollution, every effort is being made to increase the use of gas appliances.

The industrial uses of gas are becoming more and more recognized by the manufacturer, and in order to meet his requirements on technical problems an Industrial Gas Demonstration Centre has been set up in Manchester jointly by various Gas Undertakers in East Lancashire (including the Manchester Corporation) to collect, tabulate, and circulate information on the various processes to which gas has been put in all classes of trades, and to experiment and conduct

research into new methods of using gas for industrial and commercial purposes. This centre also assists gas undertakings in solving technical problems which occur from time to time and also carries out tests for industrialists in order to secure greater economy in working and in displacing raw coal as a fuel.

From the figures previously quoted [in the report] it will be gathered that the contribution which gas is making to smoke abatement is substantial. On the question of the cost of gas as against coal this is mainly determined by individual consumers' requirements, but no claim is made that if a gas fire is in constant use during the day it is cheaper than an open fire. Other factors besides that of cost (labour saving for instance) are usually considered when decisions are made to use gas in preference to coal.

### Electricity.

The use of electricity in Manchester is popularized by the adoption of such measures as cheap tariffs, hire and hire-purchase of appliances, prepaid wiring and assisted wiring schemes as well as exhibitions and demonstrating the use of electrical methods and appliances in industry and the home, lectures, advertising, showroom displays, and similar propaganda. From time to time, as circumstances warrant, progressive reductions are made in the charges for energy and hire of apparatus.

... Electricity, like gas, is making a substantial contribution towards smoke abatement, but again, as in the case of gas, no claim is made for electricity that if a radiator is in constant use during the day it is cheaper than an open grate fire.

The greatest contribution made by electricity to smoke abatement is in its displacement of and substitution for small private power plants used for industrial purposes. Except when operating large condensing engines and turbines under very favourable conditions the small steam-power plant is definitely uneconomical and is rapidly being replaced by electric motors or other power units, which do not appreciably cause pollution of the atmosphere. In 1933 nearly 85 per cent. of the power used by industry in Manchester, amounting to nearly 270,000 horse-power, was supplied in the form of purchased electricity. Of the balance, approximately 50,000 horse-power, rather less than half, can be looked upon as potential black-smoke-producing plant. It may be assumed that the smoke nuisance due to privately-operated steam-power plant will, in a few years' time, in this area be reduced to negligible proportions.

### Solid Fuels.

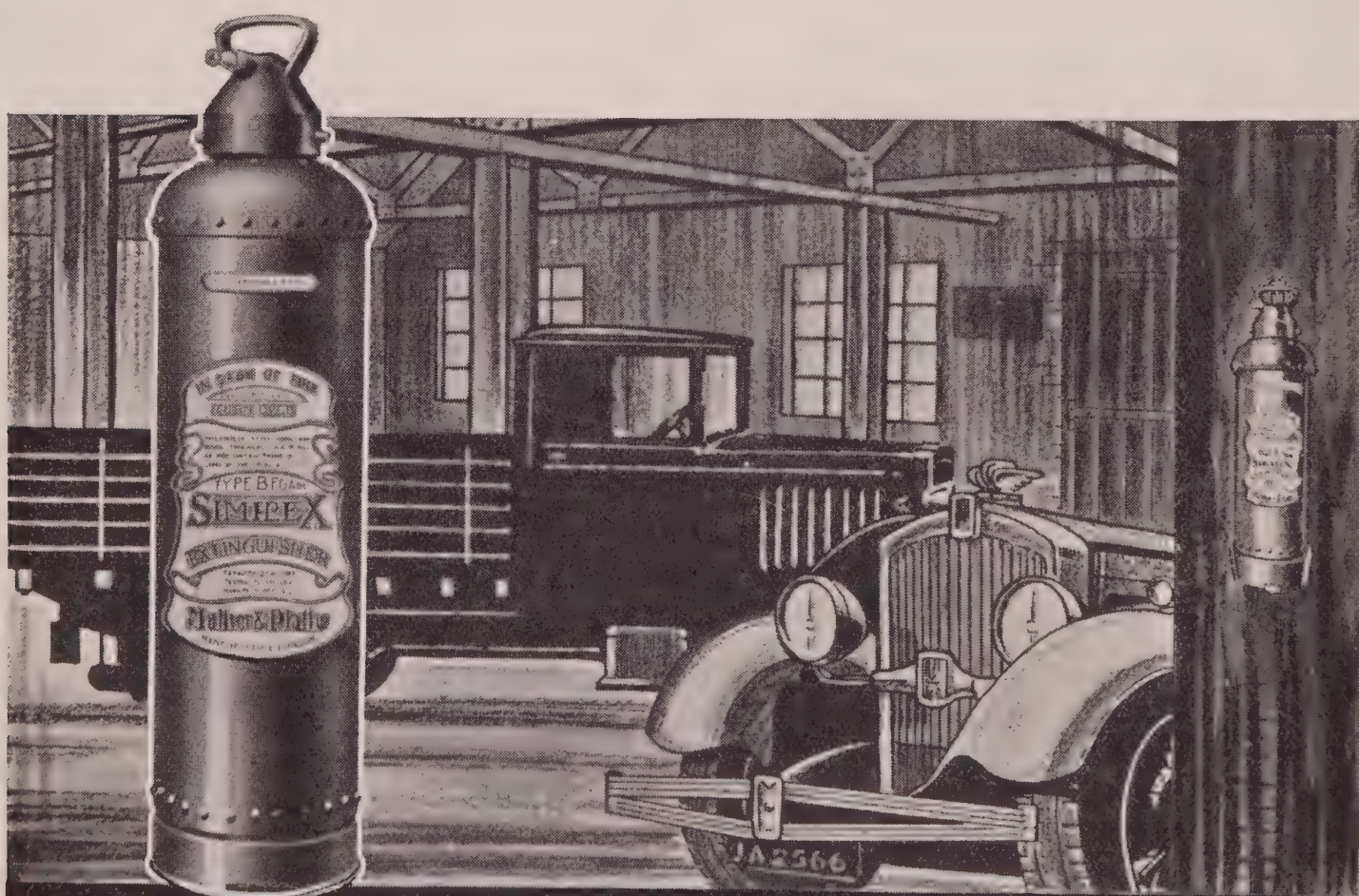
The Manchester Corporation Gas Department supplied last year over 26,000 tons of coke for domestic use. Twice this quantity can be supplied without



# SIMPLEX EXTINGUISHERS

## SODA ACID and FOAM TYPE

"Simplex" Extinguishers, approved by all Insurance Companies, combine maximum efficiency with simplicity in operation and unfailing reliability with lowest cost. They are made in a wide range of colours to harmonise with any decorative scheme. A catalogue printed in natural colours will be sent on application.



**Mather & Platt** *Ltd*

MP 186

• PARK WORKS, MANCHESTER, I.D. •  
PARK HOUSE, GT. SMITH ST, LONDON, S.W.1.



interfering with the local industrial requirements. If additional supplies of coke are required it will be necessary to have a combined policy for the sale of gas and coke. The present price of coke delivered in bags is 1s. 5d. per cwt.

Your Committee are indebted to Mr. Arnold Marsh, General Secretary to the National Smoke Abatement Society for the valuable notes on low temperature carbonization, which are printed as an appendix to this report. Those notes refer to certain processes now on the market, or on the point of being marketed, and your Committee have been informed that as demands increase steps will be taken to provide additional supplies of these low temperature fuels.

Members of your Committee on 22nd March, 1935, visited the Public Health Offices, Salford, and were there met by the Medical Officer of Health, Dr. Osborne, who showed them coke fires which had been installed in the offices for a number of years. At these offices the whole of the fire grates, many of which were of an old pattern, have been converted into all-firebrick types suitable for burning solid, smokeless fuels, including gas coke. The total number of such fireplaces in these offices is fifty-one, and for many years the only fuel to be burned has been dry gas coke.

Dr. Osborne said that their own fuel bill had been reduced by about 40 per cent. since the adoption of coke throughout. In his opinion there should be no sulphur fumes experienced, provided the grate and flue are properly constructed and provided the fuel burnt is of the dry or unquenched variety.

A similar system to that adopted at the Public Health Offices at Salford is in operation at the Maternity Home and Babies' Hospital in Seedley Terrace, which is heated throughout the administrative portion and also the wards by coke fires.

From Salford members of your Committee proceeded to Chadderton, where they inspected a house on the White Gate Estate at Mough Lane, Broadway. An interesting feature of the development of this estate is that the use of coal is eliminated altogether . . . What particularly impressed the members of the Committee is the fact that this development at Chadderton, which when completed will bring into being a smokeless village of some 900 houses, is purely a business proposition. Incidentally, it may be remarked that other building estates in and near the City are being or are to be developed by private enterprise on somewhat similar lines to the Chadderton Estate.

With all the possibilities which are open to the Corporation, in view of their large rehousing programme, it is felt by your Committee that they should not lag behind in this new phase of house development, *i.e.*, the smokeless house. They have ascertained that it would be possible to adapt the back-to-back grate which is now used on the Corporation Housing Estates so that coke instead of coal can be burned, and in the subsequent recommendation they make concerning an

experiment on a Corporation Estate they are anxious in advance to secure the interest and co-operation of the Housing Committee, as the success of the experiment, in their opinion, is fraught with great possibilities. The smokeless house may become the smokeless village, and the smokeless village the smokeless and consequently cleaner and healthier City. The Chairman of the Town Hall Committee, who is a member of your Committee which is investigating this subject has assured your Committee that the suggested experiments in the Town Hall will be followed by the Town Hall Committee with close interest.

### The Recommendations.

The recommendations your Committee make are as follows :—

1. That the Housing Committee be instructed by the Council as an experiment to make provision, say, in fifty Corporation Houses for grates to be specially adapted to burn coke instead of coal, and to arrange that for a period of twelve months coke supplied by the Manchester Corporation Gas Department shall be burned in such houses instead of coal. Further, to instruct the Housing Committee at the expiration of the twelve months' period to report to the Council through the General and Parliamentary Committee upon the results of the experiment from the point of view of efficiency and economy.

2. That the Town Hall Committee be instructed by the Council to carry out in such offices within the Town Hall, as may be found suitable for the purpose, experiments both with the ordinary coke as supplied by the Manchester Corporation Gas Department, and low temperature fuels supplied by outside firms, and report to the Council through the General and Parliamentary Committee the results of the experiments after they have been in operation for a period of twelve months.

3. That the Gas Committee be instructed by the Council to consider the question of the installation of a plant to produce low temperature carbonization fuel and report to the Council through the General and Parliamentary Committee on the subject, both from the economic aspect and also from the point of view of stimulating the use of smokeless fuel in the City.

### Appeal to the Public.

Your Committee also wish to make an appeal to the public generally to experiment with smokeless fuels.

As and when the public show their appreciation of smokeless fuels supplies will be increased. At present if the demand were general there would of course, be nothing like sufficient supplies available. Any suggestion, therefore, to introduce an element of compulsion in the use of smokeless fuels in substitution for raw coal is out of the question. The time to consider that aspect of the subject may arise when smokeless fuels can be obtained from distributors in the streets as readily as coal is obtained to-day.



# BETTER, HOTTER AND CLEANER FIRES

---

Smoke abatement does not mean that open fires must be abolished. The use of the open fireplace in this country ensures well warmed and ventilated rooms at a cost much below that of any other system of heating.

“**COALITE**” is the best fuel obtainable for the open fireplace. It is a smokeless fuel made from the best British coal. Only clean washed coal is used so that the ash content is reduced to the lowest possible figure. In the manufacture of “**COALITE**” the soot and smoke producing constituents of the coal are eliminated, leaving a highly efficient radiant smokeless fuel.

“**COALITE**” gives the maximum useful heat with the minimum loss.

“**COALITE**” lights easily with paper and wood and quickly gives a clean, hot and cheerful fire in any type of open grate, kitchen range and closed stove. “**COALITE**” is the fuel for all purposes as it requires no special grate nor excessive draught or gas jets to assist lighting up or combustion.

“**COALITE**” is an economical fuel, though its price may appear somewhat higher than that of raw coal. An independent test for consumption and heat in an ordinary open fireplace carried out from November, 1931, to April, 1932, under normal practical conditions, showed that one ton of “**COALITE**” went as far as  $27\frac{1}{2}$  cwts. of best coal and gave equal heating.

A saving of 37% in the amount of fuel used was therefore effected and thus, in spite of its somewhat higher cost per ton, “**COALITE**” is cheaper in use than ordinary coal and provides cleaner, better and brighter fires.

## “**COALITE**”

---

(Regd. Trade Mark)

*Supplies are obtainable from all leading Fuel Merchants. If any difficulty is experienced please communicate with the Company :*

**LOW TEMPERATURE CARBONISATION LTD.**

**28 GROSVENOR PLACE, LONDON, S.W.1**

Telephone SLOANE 9274



# PRESS CUTTINGS

## SMOKE ABATEMENT AS OTHERS SEE IT

### The Colouring of England.

Dimness was a characteristic of the early Machine Age. Smoke was in the sky, smoky were the chimneys which poured the story of England's prosperity to clouded skies, smoky were the workshops, the yards, the mills, the tunnels, and the factories of that industrious era. Grime settled about minds and lives and thoughts, and grime was synonymous with English prosperity and solidity.

But recent years have changed all that. New and cleaner ways have come into industry and home life. Soot is no longer the symbol of national and family greatness . . . Colour is sweeping back into English life.—*The Evening News, London.*

### Correct.

As a despairing housewife remarked the same day, "How can one keep anything clean in this dirt-laden atmosphere?" The answer to that is, "Try to keep the atmosphere clean."—*Bolton Journal.*

### Thank You !

Our excellent Smoke Abatement Society . . . .  
—*Daily Mirror.*

### Automatic Support.

Anyone who has flown over or near such areas as that surrounding Newcastle-upon-Tyne must have become quite automatically a supporter of the Smoke Abatement Society. Usually, in that part of the world, the towns are surrounded by an opaque pyramid of yellow smoke, and one wonders how the population manages even to survive.

Certainly the problems of reliable air transport are tremendously increased by this nuisance. If one considers only the waste of power, it is difficult to find any reason for delaying a national campaign for smoke abatement.—*Flight.*

### A Note upon Nourishment.

The interesting story of coal was re-told last night to the members of the Hockley Heath Women's Institute, by Mr. F. W. Brick, Midland area publicity manager of the Coal Utilisation Council. Mr. Brick referred to attacks on the national fuel made from time to time in the cause of smoke abatement. Thank goodness, he said, we were seeing more smoke. In an industrial centre smoke denoted life in industry, returning prosperity, the man of the house in employment again, and the children well nourished.—*Birmingham Evening Gazette.*

### A Note upon Inefficiency.

It cannot be too strongly emphasized that smoke emission in practically every case implies inefficient combustion of fuel, and this results in higher fuel costs than are necessary.—*From a letter in the "Yorkshire Post" by Mr. P. J. Hill, North-Eastern Branch, Coal Utilisation Council.*

### So Absolute an Evil.

It is not that there are not plenty of good arguments against smoke without going into the air to look for them, but it is both important to consider this new reason and useful to have our patient tolerance pricked by a new aspect. Nuisance is too mild a word for so absolute an evil, and what is chiefly annoying is that it is at once too unnecessary and so slow to be removed.—*Manchester Guardian.*

### Penny Wise.

Perhaps the biggest blunder in this country's history was when following the exploitation of our coal resources, we permitted our industrial development to grow like Topsy, without proper scientific control of its conditions. Apart from the hideous way the great industrial centres were allowed to spread architecturally, it is almost impossible to estimate what air pollution has cost us in health and general amenity of life. Smoke abatement is purely a question of expense, and we have been penny wise, pound foolish, all through the story.—*Sussex Daily News.*

### One of the Great Causes.

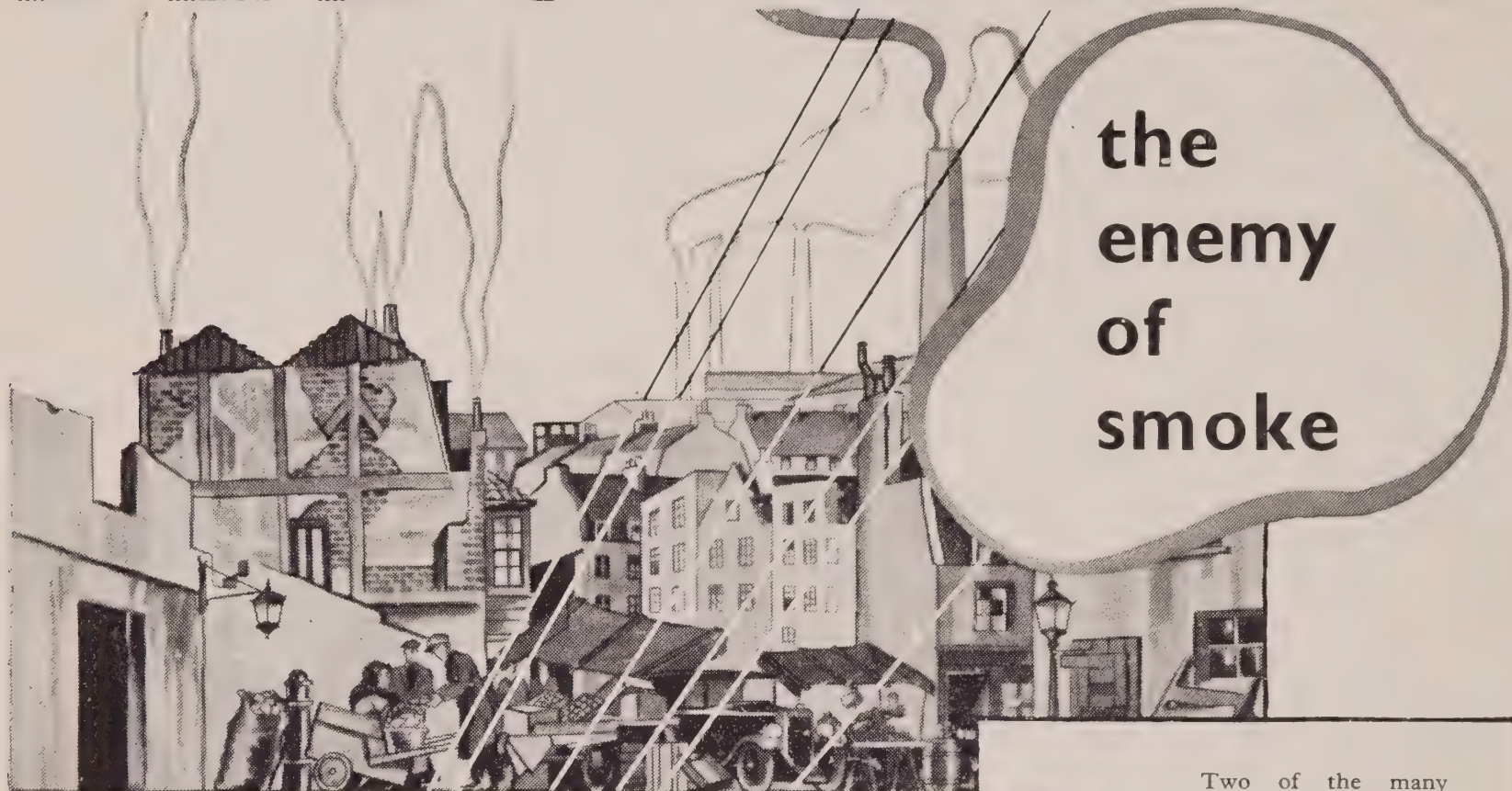
Few of us ever know the amazing clarity of air that the aviator revels in, that air which would add infinitely to our general health and happiness if we could bring it down to our pavements. But we must strive to find the means of bringing down that true sunlight with its blessings and its beauty. Smoke Abatement is one of the great causes.—*Glasgow News.*

### Yorkshire Papers, Please Copy.

The time does seem to have arrived when the smoke menace should be tackled in a more business-like way than it has been in the past. Many local authorities indeed have come to regard communications from the Smoke Abatement Society as well-intentioned but hopelessly impracticable, although why they should devote so little attention to so grave a problem remains a mystery. How many times have we heard smoke abatement circulars greeted with the out-of-date piece of Yorkshire wisdom, "I wish there were more smoke. Where there's smoke there's brass." ? Science proved the fallaciousness of that theory long ago.—*Halifax Courier.*



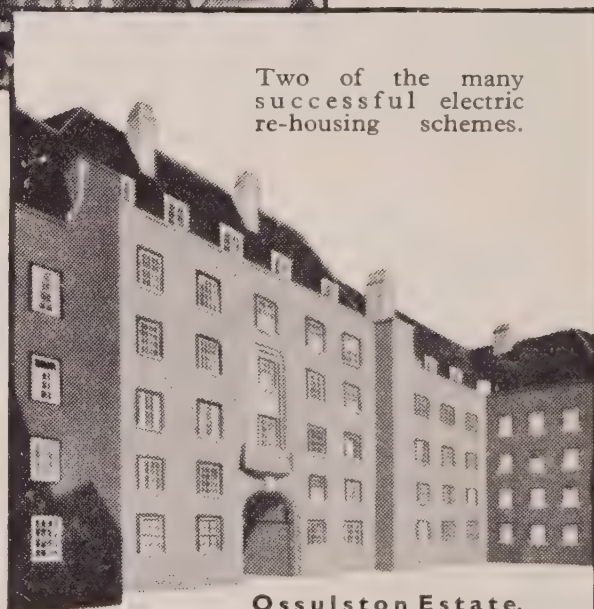
# ELECTRICITY



the  
enemy  
of  
smoke

Electricity is the most powerful ally of those engaged in the winning fight against the evil of smoke pollution. Electricity is the perfect, smokeless, pure source of light, heat and power. Local authorities everywhere are finding that the all-electric re-housing scheme is the most truly economical. Magnificent blocks of all-electric flats, cheerful all-electric houses, are revolutionising the living conditions of the million. The output of current has increased by over 155 per cent. in the last ten years. Users of electricity now number over six million. Current is available throughout three-quarters of the country at about three-farthings a unit. The time is near, very near, when electricity will have brought the blessings of pure air and sunlight to *everyone* in the land.

Two of the many  
successful electric  
re-housing schemes.



**Ossulston Estate,  
Somers Town.**  
Tenants are delighted  
with the economical  
electric equipment.



**Preston Corporation  
Housing Scheme.**  
Houses vary in size,  
rents ranging from  
6.4 to 10.6 weekly.

Architects, Members of Housing Committees, Engineers of Municipal Authorities and others will be interested in "Electricity and Re-housing" giving detailed particulars of above and other housing schemes. Free on request. Enquiries should be addressed to The Director and Secretary,  
**ELECTRICAL DEVELOPMENT ASSOCIATION, INC.**

2 Savoy Hill, London, W.C.2.

Telephone is Temple Bar 9434

SAT



### Another Thank You.

The enlightened policy of the National Smoke Abatement Society. . . .—*Glasgow Herald*.

### Mr. Thomas Walker's Latest Discovery.

Is the National Smoke Abatement Society anxious to poison our airmen? It has been discussing what it alleges to be the "smoke menace" and it makes this alleged nuisance an excuse for demanding the prohibition of coal fires. But in its propaganda on behalf of "smokeless fuels" the National Smoke Abatement Society contends that the gases resulting from their combustion do not bother people on the ground because they are speedily dispersed in the upper air.

It's a nice outlook for our flying men if they are to wear gas-masks in peace time!—*Letter from Mr. Thomas Walker in the "Daily Mirror," "Daily Dispatch," "Evening Chronicle," etc., etc.*

### The Elementary Duty.

The elementary duty of municipalities is surely, then, to encourage more vigorously than they do the domestic consumption of smokeless fuel, electricity, gas, and oil.—*Liverpool Daily Post*.

### Another Strong Case.

This question of visibility will become increasingly important with the growth of aviation and the widespread increase of privately-owned aeroplanes in the near future. It must be agreed, therefore, that here from a new aspect we have another strong case against the smoke evil.—*Lancashire Daily Post*.

### Incredible.

The increase in travel by air has lent new power to the elbow of the Smoke Abatement Society. Familiarity has bred tolerance, but it is still incredible that in these days, when we are coming to appreciate the value of sunlight and clean fresh air, that we should continue to be indifferent to the existence of a canopy of our own making.—*Eastern Daily Press*.

### More than Valid.

If the case for smoke abatement needs any strengthening—though it is already more than valid—an additional argument can be found in its effect on air travel.—*Nottingham Guardian*.

### The Human Element.

There is one factor in connection with plant operation that has not received as much attention as it should, and that is the human factor in connection with the operation of the plant. No machine has yet been developed that has proven to be a cure-all for all evils, and, consequently, the human element must have consideration in connection with the equipment itself. There is much about every piece of equipment and apparatus that requires careful attention, careful

### The Canopy of Dirt.

The efforts of the Town Hall staff to clean Prince Albert's canopy, though beneficial to its general health, have left it looking shabbier than ever. The bands in the spire are visible, but the prevailing tint is a mournful, indecisive and irregular grey. Where there are carved mouldings and crockets the effect must be to make the work of the cleaners more difficult and uncertain than on the flat. The blackness has penetrated the stone, adding its own canopy of dirt.

The exploration of the canopy has shown that there are some repairs necessary. Some of the white stone angels need to be grouted on to their bases, and the metal-work on the summit has to be refixed. It is for these purposes that the scaffolding is being put up.—*Manchester Guardian*.

### Testimony to Progress.

There is no doubt that the public is more concerned than ever before about air cleanliness, both as regards pollution by smoke and by dust as well as by offensive gases. Local authorities, too, are becoming more interested and have frequently appealed to the Ministry for advice and assistance in dealing with difficult problems.—*From the Annual Report on Alkali, &c., Works, by the Chief Inspectors, presented to the Minister of Health*.

### The Inhumanity of Warfare.

Sir,—Amid much talk of the defence of our great centres of population from attack by hostile aircraft, I have noticed no mention of a method which would seem to be cheap, readily organized, and so effective as to make attack from the air abortive and the use of aircraft for this purpose impossible.

I saw in your issue of May 31st an account of the difficulties our own air services had in determining positions under conditions of smokelessness enforced by law.

Surely thickly-diffused fog and smoke generators in the charge of voluntary organizations could, with half an hour's warning, make and maintain an effective shroud over London or any other vulnerable district. In fact, the countless chimney pots of our cities could provide an artillery that no aircraft could face or overcome.—*Letter to The Times*.

operation and a constant check-up to see that satisfactory operation is being obtained.

For that reason the human element is a very vital factor in connection with the operation of any plant. Equipment alone is not sufficient. It is a well-known fact that a trained operator can make remarkable improvements in any type of plant from the standpoint of efficient operation as well as smokelessness if he has the knowledge and will to do it.—*Ralph G. Johansen, in "Smoke."*



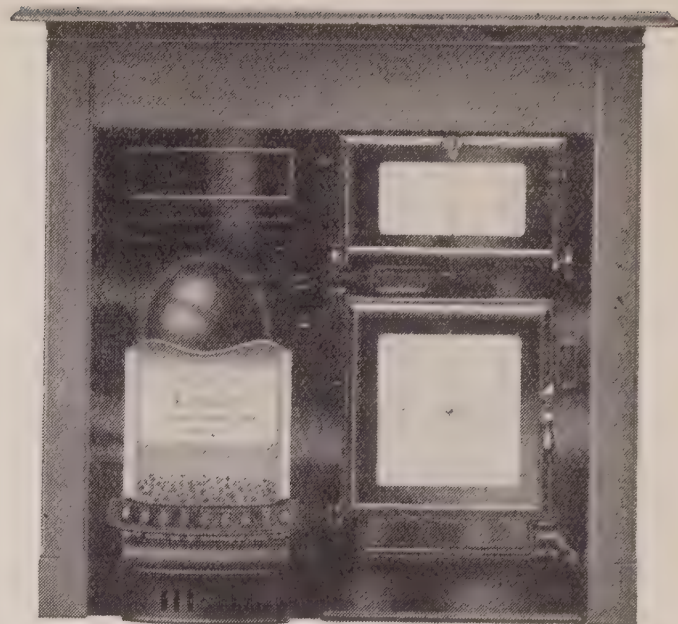
# The **EAGLE**

## COKE BURNING COMBINATION GRATE

THE 'EAGLE' L.C.21 COKE-BURNING COMBINATION GRATE ensures perfect cooking, abundant hot water and a bright open fire, at a very low fuel cost.

Coke as a domestic fuel has many advantages—no smoke, no soot, economical and clean in use, easily lit by means of the gas burner without the use of paper and firewood.

Further particulars from :



The **EAGLE RANGE & GRATE Co. Ltd.**  
CATHERINE STREET  
ASTON, BIRMINGHAM, 6

### THE JOURNAL OF THE NATIONAL SMOKE ABATEMENT SOCIETY

is undoubtedly the ideal medium in which to advertise Smokeless Fuels and every appliance or device for minimising or abolishing the smoke nuisance. The advertisement rate is very moderate, while advertisers are assured of **every copy** of the Journal reaching the people who are working for this great modern reform. Smoke Abatement is not a theory ; it is not merely hygienic propaganda. **It is a step forward in the life of the nation.** The movement is making wonderful progress ; it is overcoming all old-fashioned prejudices. Its advance is irresistible. Every engineering firm which produces smoke-abating appliances, and every maker of smokeless fuels, should openly associate themselves with this great national reform, by advertising their products in the **only** National Journal devoted to Smoke Abatement.

Enquiries as to advertisement space should be addressed to the publishers :

**THE SERVICE GUILD LTD.**

49, Deansgate, MANCHESTER, 3.

Telephone : BLACKFRIARS 3313.



# RAILWAY ELECTRIFICATION AND SMOKE ABATEMENT

BY E. W. ASHCROFT

There are signs that the long delay in electrifying certain sections of railway in Great Britain which can clearly be more efficiently and profitably worked by electric traction is at last ending. Three or four years after the War, plans for electrification which embraced most of the heavy density traffic lines around London, Manchester, Birmingham, Leeds, Liverpool and Glasgow, were drawn up by a number of the then separate railway companies. Thus it was commonly believed that the York-Doncaster line would be electrified and, in the Manchester area, the energetic Lancashire and Yorkshire railway had actually begun the civil engineering work necessary before electrification along the Manchester-Oldham line. The amalgamation of the railway companies into four large groups had the immediate effect of postponing schemes involving relatively heavy capital expenditure until the new organisations were working smoothly. But from 1925 onwards the depression in the financial condition of the railway companies consequent in part upon the development of road competition and the general fall in industrial traffic has, except in the case of the Southern Railway and for small schemes such as the Manchester-Altrincham line, still further postponed electrification.

To-day, however, the situation has changed. Although both the L.M.S. and the L.N.E.R. are not in a favourable condition for raising fresh capital, the considerable economic success of electrification on the Southern Railway and in Europe, a success characterised by a greater growth in railway traffic than was anticipated, and greater economies in operation have forced action. Sir Herbert Walker has stated that the Southern Railway have made a gross profit of £1,680,000 as a result of electrification, whilst in Europe railway electrification schemes started as a part of a policy to increase the use of water power and decrease that of imported coal, have been continued solely on the grounds of the ability of electrical services to attract new traffic. A case in point is the new 131-mile electrification of the French State Railways (Chemin-de-Fer de L'Etat) from Paris to Le Mans. This railway has always been able to buy its coal cheaply. Railways in Sweden and Germany which are directly comparable with British railways have shown also that it pays to electrify railways with much lower existing traffic densities than was before thought justifiable—indeed some of the Southern Railway sections are also very lightly loaded.

In general one may say that to-day no one denies the benefits to railway working of electrification, and that it is now realized that the disability to incur

capital expenditure for electrification on the part of the railway companies is depriving the railway companies of their most vital means of recovery and of fighting road transport, and that this disability must be overcome. The Government have already announced that when the local authorities and the railway companies can reach agreement as to the necessity for schemes in any given area, the Government will give financial support as it has already done in the London area.

One has no need to stress the social advantages of railway electrification in industrial or closely populated areas. The Manchester Regional Planning report, for instance, referred to the need for railway electrification in the area with a view to decreasing the appalling road congestion. Similar references have been made in other Lancashire Regional Planning Reports. Planned housing development, as compared with haphazard ribbon building, can best be carried out to-day in large urban centres where it is possible to create satellite towns at some reasonable distance from the centre of the main mass. The creation of such towns depends upon efficient railway services of the type which can only be given by electrification.

## Smoke Prevention.

Too little attention has been given to the effect of railway electrification in reducing the amount of atmospheric pollution caused by railway smoke. In Lancashire this aspect of the question has a particular significance owing to both the gravity of the existing smoke problem and to the huge development of the railway network. It must be remembered that it is not only the moving locomotive which emits smoke but the locomotive in the goods-yards and sheds. Indeed, the waste of fuel during steam raising, one of the strongest arguments against the efficiency of the steam locomotive, contributes largely to the social menace of smoke pollution. In Chicago, an investigation by the municipal health authorities showed that approximately 10 per cent. of the atmospheric pollution was caused by steam traction under normal conditions. No sufficiently exact figure can be quoted to show the actual responsibility for the air pollution by steam traction in a large British city, but one has only to call to mind the volumes of smoke emitted daily from Manchester's four main railway stations, each within a mile and a half of each other, to recognise how strong a contribution to the amenities of life could be effected by electrification.

There exists already a large number of railway electrification schemes carried out with the main object of preventing smoke discharge. This has been the





*The Gas Works Yesterday*

&



THE GAS WORKS TODAY

... the difference ...

## GLOVER-WEST VERTICAL RETORTS

**T**HE smoke evil shrinks as gas consumption grows and methods of gas usage develop. **At the point of manufacture the smoke evil need not exist.** The gas works pictured on the right is equipped with Glover-West vertical retorts. Gas production is proceeding normally. There are no outward signs because carbonizing here is a totally-enclosed process. Like 260 others throughout the world, this undertaking enhances its claim to be the community's principal weapon against atmospheric pollution.

*for a smoke-free Gas Works ...*

## West's Carbonizing Systems

WEST'S GAS IMPROVEMENT CO., LTD.

MILES PLATTING MANCHESTER, 10



case in several cities in the U.S.A. ; among them is New York, in which steam traction is entirely forbidden in the centre of the city. The New York authorities were quick to recognize that objectionable smoke is emitted not only by the regular steam services for passengers or goods, but from goods and shunting yards in the city. Thus the City of New York co-operated with the New York Central Railways in the electrification of the West Manhattan goods yards by erecting a road viaduct, the substructure of which carried the catenaries and supports for the electrical operation of freight movements. Arrangements similar to this could easily be arrived at in British cities for the electrification of goods yards. In London there are over  $3\frac{1}{2}$  thousand acres of railway goods-yards, all of which would have either to be electrified or, as could be done with improved operating conditions of electric railways, placed outside the main mass of London. Even if third-rail system is adopted in future electrification schemes in this country, no difficulty exists in the case of electrification of goods-yards. Electric locomotives for use in the goods-yard can be supplied with a pantograph for use in the yards, which must themselves be electrified on the overhead system, due to the danger to workers in the yards from the third rail. Another example of civic action to effect smoke reduction is that of the Vienna State Railways which electrified 16 route miles of railway in 1925 under agreement in lease-contract with the city. In Naples, too, smoke prevention was behind

the electrification of the main railway running through the city.

### Tunnel Linings and Terminus Property.

From the point of view of the railways, smoke elimination through electrification has the advantage of decreasing the deterioration of tunnel linings. This is particularly important on lines with tunnels and heavy gradients and is indeed one of the reasons why the electrification of the Manchester-Sheffield (Penistone) route is being considered. The increase in capital value of property above the terminus stations in large cities is another extremely important item which ought to be debited against the cost of electrification.

In conclusion, it must be stated that whatever may be the difficulties ahead of a large-scale programme of main-line railways, the way is clear for the electrification of hundreds of miles of railway serving the industrial areas of the country in which population is concentrated.

It is, indeed, no exaggeration to say that just as the electrification of the underground railway system was, in the first stages of the growth of a metropolitan city, a vital necessity, so in the growth of large modern cities, the electrification of suburban railways is becoming equally a necessity. In the case of the underground, the elimination of smoke was a paramount consideration. It would be so to-day in the case of railways in crowded centres of population if our sense of values, human and aesthetic, was better developed.

---

***NOW READY . . . .***

---

# SMOKE AND AVIATION

*Full Report of the Conference held in London  
on May 30th, 1935*

Papers by C. S. DURST, WILLIAM COURTENAY,  
ALAN GOODFELLOW and Capt. ALFRED G. BUCKHAM

12 Illustrations

-

Photographic Cover

-

40 Pages

Price—ONE SHILLING, post free



# THE SERVICE GUILD LTD.

We Supply PROGRAMMES  
HANDBOOKS and MAGAZINES  
——— FREE OF CHARGE ———

*For further particulars please write to . . . . .*

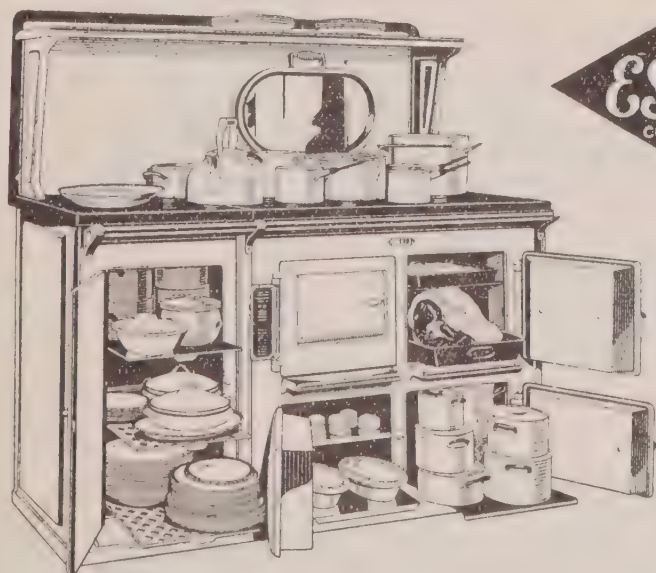
## THE SERVICE GUILD LTD.

49 DEANSGATE  
MANCHESTER, 3

TEL. BLA. 3313

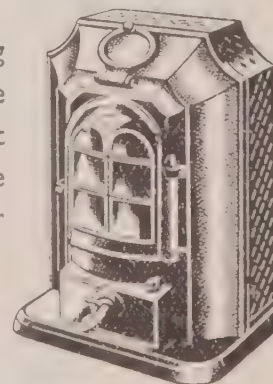
*PROMPT ATTENTION GIVEN TO ALL ENQUIRIES*

## **Anthracite is Smokeless and gives maximum economy with these Appliances**



This wonderful cooker saves in fuel costs enough to pay for itself in about three years. Clean, labour-saving, fume-free. No daily lighting.

Continuous Heating for 3d. a day. Ensure steady safe heat throughout the house. No fumes or dirt.



**ESSE**  
PATENT STOVES

*British Patent Nos. 370680; 390119; 390674; 390749; 394177; and Licensed under British Patents Nos. 205071 and 332444.*

**SMITH & WELLSTOOD LTD.,** Bonnybridge, Scotland  
Showrooms at 11, Ludgate Circus, LONDON E.C. 4. and at LIVERPOOL, EDINBURGH and GLASGOW



# LIQUID FUELS

## A PRACTICAL TREATISE

Some liquid fuels can create a smoke nuisance, or give offence with their fumes, if their combustion is not correctly controlled ; but on the whole the liquid fuels are admirable smokeless mediums, and some perhaps, might be used more widely and considered more carefully than is at present the case in this country. The smoke abatement worker needs to have at least a general acquaintance with the manufacture, properties, and methods of utilizing the different type of fuel, and an excellent, comprehensive, and methodically-compiled text-book on the subject, just published, is "Liquid Fuels," by Harold Moore, M.Sc.Tech., (London : The Technical Press, Ltd., Medium 8vo., pp. 264, 21/. net.)

The book is primarily a practical treatise for chemists and engineers, but it is of considerable general interest to anyone who is at all concerned with the use of fuels. After dealing with the chemistry of liquid fuels their preparation from various sources is described—from petroleum, shale oil, coal and lignite tars, wood and peat carbonization, animal and vegetable oils, ethyl alcohol, and synthetic fuels.

The relation between the chemical and physical properties of fuels and engine efficiency is described, and then notes are given on the use of fuel for internal and external combustion. The concluding part deals with the significance of tests and analytical methods.

From the smoke abatement point of view the section on liquid fuels for external combustion is of greater interest than that on internal combustion, for the latter uses of liquids are not alternatives to methods which may create smoke nuisances : although the creation of nuisance as a result of carbon monoxide in the exhaust gases of petrol engines, and of visible fumes from heavy oil engines, are problems that have become important in recent years.

The use of liquid fuels for external combustion is dealt with very fully, and the descriptions range from the portable domestic oil-heater to the large marine and land power plants. From the smoke abatement point of view it is immaterial whether oil is used in preference to coal or other fuels in a scientifically regulated and controlled furnace, but the special advantage of oil over solid fuels are tabulated by Mr. Moore, and may be quoted as follows :

(a) The storage of oil is not attended by a loss of space encountered when lump coal (and the voids) occupies the same storage volume.

(b) The higher calorific value of liquid petroleum fuels (18,500 to 19,000 B.Th.U. per lb.) as compared with that of coal (13,000 to 15,000 B.Th.U. per lb.)

adds further importance to the first point ; it is a vital argument from a marine viewpoint in that less weight of fuel than of coal need be carried for a given sea voyage.

(c) It is possible to utilize the heating powers of oil fuel more efficiently ; in addition, the combustion of oil fuel is more easily regulated, and more important from most points of view is that fact that full power can be reached very rapidly, or sudden demands for large increases or decreases in the amount of steam generated are rapidly accommodated by oil fuel burning installations. There is also no necessity for banking (coal) fires and a loss of fuel when the plant is shut down for overhaul, etc., when coal is the fuel employed.

(d) The use of oil fuel permits a reduction of boiler-room staff, cleaner working conditions for the necessary firemen, and no ashes or clinkers for clearing away, and atmospheric pollution by dusty (ash) particles is reduced to a minimum.

(e) The benefits of oil fuels reflect themselves in boiler design. There is no need for grates, fire-bars, ash-pits, etc., so that the weight of boilers and the overall volume of a boiler for a given steam generation are less for oil-fired boilers than for coal units.

(f) Special facilities are afforded by liquid fuels used in ships. Being a liquid, the entire bunker requirements can be quickly transferred by pumping from land installations or large barges to the ships.

(g) Oil-fired ships also possess the advantage of being able to maintain an even keel by transferring rapidly from one tank to another ; this removes the necessity for admitting water to the vessel.

(h) Oil can be stored indefinitely without deterioration or loss of calorific value, whereas coal tends to "weather" and lose part of its calorific value in the process. Equally important is the fact that coal is prone to spontaneous combustion, whereas oil is not.

The author points out that, nevertheless, the efficiency of coal combustion has been continually increased by improvements in coal utilization, chief among which is the growing use of pulverized fuel.

---

### The Unkindest Cut.

Voices saying : " Jeffries, don't exaggerate . . . , climate best in the world . . . summers often perfect weather . . . plenty of sun in London." True ; moderately true. There is plenty of it in London. I am glad to see it, too. The sun in London always reminds me of the sun.—J. M. N. Jeffries in " Front Everywhere."



# THE DOMESTIC COKE MARKET

## MR. JOHN ROBERTS' PROPOSALS

In an article in the "Gas Journal" of July 24th, Mr. John Roberts, D.I.C. surveys the domestic coke market in its relation to the Gas industry and from the smoke abatement point of view especially his views and proposals are of considerable importance. Mr. Roberts, it will be recalled, contributed a paper on "The Properties Required in an Open-Grate Fuel" at the Symposium on Smokeless Open-Grate Fuels, organized last year by the Society.

The Gas industry, writes Mr. Roberts, must advance on the domestic solid fuel front. "This must not be taken to mean an attack on the coal distribution trade, but the replacement of coal by solid smokeless fuel; this fuel would still have to be retailed and distributed in as great a quantity as is raw coal at present."

"No Gas Engineer will question the desirability of smoke abatement, the wastefulness of smoky coal consumption, or the enhanced radiant efficiency of smokeless fuels. We must acknowledge the advantages of the open fire under British climatic conditions, and admit that from the point of view of cost the open fire is cheaper than the gas fire, while the electric fire is still more expensive. In view of the fact that comparatively little gas-works coke is used in open grates, it must also be allowed that the Gas industry is doing far too little towards producing that smokeless fuel which provides the most desirable and cheapest form of domestic heating. To neglect this market is an oversight of great magnitude. The industry will not fulfil its function until it caters for the complete requirements of the householder in this respect."

### Beyond the Gasholder.

"If we view a gas retort as a carbonizing machine," continues Mr. Roberts, "—which is the correct view to take—it may reasonably be urged by Gas Engineers that the machine must be worked at its maximum efficiency, and it should be the object to obtain the maximum yield of therms in the state demanded by the economics of that industry—namely, the gaseous state. In my view, however, the Gas Engineer who does not look beyond the gasholder "places his head in the sand." It is not so much the existing market, but the market which could be created by engineers of vision, who were prepared to adapt their processes to meet the requirements of consumers who are uncatered for at the present. The Gas Industry in this country carbonizes about one-half as much coal as domestic consumers use in the raw state, and makes less than one-quarter as much solid gas-free smokeless fuel. This gas-free coke calls for special appliances to

enable it to replace raw coal in the domestic grate, and although the use of these appliances is expanding, progress in smoke abatement will be very slow indeed if we rely solely on such measures."

The article considers whether there is a market for such fuel, and whether it could be expanded sufficiently to justify a change of policy on the part of the carbonizing industry. It is believed that there is a ready market for the right type of coke. "Between the extremes of raw, smoky coal and gas-free coke there is a wide, but shallow, gulf, easily fordable. The two main stepping-stones are low-temperature and medium-temperature carbonization." The shortest step for the Gas industry is the adoption of one or other of the medium-temperature processes, in which the yields of gas range from 6,000 to 9,000 cu. ft. per ton, and which produce a smokeless fuel having 4 to 8 per cent. volatile.

### Four Carbonization Systems.

"It is the domestic coke market which offers the greatest scope in this industry, and it is quite unnecessary to limit the expansion of gas sales. A modern gas-making plant, could, in fact, employ four systems of carbonization—namely, (1) high-temperature carbonization coupled with steaming for the production of cheap gas and cheap gas-free coke for coke boilers; (2) medium-temperature carbonization (fast coking) for the cheap production of free-burning open-grate coke of 4 per cent. volatile content, and a moderate yield of gas; (3) medium-temperature carbonization (slow coking), producing a smokeless fuel with about 7 per cent. volatile matter, and a smaller yield of surplus gas; (4) low-temperature carbonization for the production of free-burning semi-coke, with the maximum tar yield, and a minimum gas yield."

Mr. Roberts considers that it would be as easy to market the different grades of coke as it is for a colliery company to-day to market, say, six classes of coal, together with foundry coke, furnace coke, and three or four grades of domestic coke. "The fuels could be classified, graded, and blended so as to suit every type of domestic heating appliance. It is equally as important to blend end products as it is to blend raw coals in the process of manufacture."

"An industry," concludes the article, "cannot remain stationary; it must either advance or recede. If the gas market has become saturated, the line of advance should be in the direction of carbonizing more coal, with a lower yield of gas per ton. Even with a revolutionary change in carbonizing practice it would take 15 to 20 years to saturate the domestic solid fuel market."



# NEWS AND VIEWS

## Scottish Branch Conference.

The Annual Conference of the Scottish Branch of the Society was held in Stirling on May 24th. A number of interesting papers by well-known authorities were read, including Mr. Robert Maclaurin on "The Economy of Smokeless Fuel," Mr. George Braidwood on "Gas Grids and Smoke Abatement Possibilities," Professor K. W. Braid on "The Effect of Smoke and Fumes on Agriculture," and Colonel W. A. Bristow on "The Effects of Smokeless Fuel on Health and Economy." The delegates were given a civic welcome by Provost Macintosh.

Mr. Maclaurin criticized the report of the Scottish National Development Council's Oil from Coal Committee, which had been set up at his own request. It was well known that a coal fire would show flame before a smokeless fuel fire, but that did not mean that it was giving out more heat at an earlier period. The Committee had fallen into the error of thinking that light was heat.

Colonel Bristow, in his paper, said, "I think it not unreasonable to expect that within a relatively short period low temperature carbonization smokeless fuel may provide 10 per cent. of our domestic requirements." In his Annual Report Mr. Allan Stevenson, the Hon. Secretary, said that while no doubt the gradually decreasing density of smoke in the atmosphere was greatly due to the large increase in the use of smokeless methods of heating and cooking some of the credit for this improvement must be attributed to the Public Health authorities and the National Smoke Abatement Society. The E.A.W. Conference.

The tenth Annual Conference of the Electrical Association for Women was held in Manchester in May, and was attended by 600 members. Indirectly, the whole of the proceedings of the conference were of benefit to smoke abatement, but the most direct reference to the subject was made by Sir John Brooke, Vice-chairman of the Electrical Commissioners, speaking at the luncheon of the association. Sir John said that the things in industrial civilization which were most inimical to health were concentration of the population in great urban areas, noisy and unhealthy workplaces, and, above all, smoke and soot. He spoke of the isolated steam generating unit with its accompanying long chimney as an anachronism, and he said of the domestic coal fire that no one else in Europe but the British considered it anything but a nuisance. The sooner the Englishman's private altar which sacrificed public amenity every hour was abolished the sooner would doctors be given a reasonable chance in their efforts to keep mankind healthy.

## West Lancashire and Cheshire Regional Committee.

In an address to this committee, held in Liverpool on June 20th, Mr. Charles Gandy, Chairman of the

National Smoke Abatement Society, suggested that local authorities should establish smokeless zones. It was the duty of every local authority to see to the cleanliness of the common home, which is the built-up area in which the inhabitants of its district spent the best part of their lives; a duty which was becoming even more apparent with the growth of new buildings and extensive housing estates, often under municipal control, and although insufficient supplies of smokeless means for heating have afforded an excuse in the past, that excuse was less applicable every year.

A beginning could at least be made by zoning areas in the centre of a city in which the emission of smoke should be entirely prohibited. Such smokeless zones, once started, would soon gain public approval on account of their comparative cleanliness, and the same principle could be extended to further suitable areas.

Mr. C. M. Opie, Chief Smoke Inspector of Liverpool, in a paper, referred to the danger and difficulty to aircraft caused by smoke, especially when landing. The first step to realize was that the house chimney was a much more dangerous enemy than the factory chimney. Probably, throughout Merseyside there were 40,000 people waiting for houses. Here, it seemed to him, was an excellent opportunity for making a great move forward.

## The West Riding of Yorkshire Committee.

At the Annual Meeting of the West Riding of Yorkshire Regional Committee, on June 21st, Dr. J. Johnstone Jervis urged that for health reasons railways should be electrified in industrial Yorkshire and Lancashire. Nobody could deny that railways were responsible for much of the pollution of the atmosphere in our cities and towns.

Mr. R. G. L. Anderson, of Wakefield, who presided, said he hoped more manufacturers would encourage their stokers to attend classes dealing with smoke abatement questions. The human element was the important element behind the problem of smoke. "I do not think we are getting the help we ought to get from the organized bodies, particularly the Chambers of Commerce," he said. "I think the Chairman of the Chambers ought to meet us occasionally to discuss the matter from their point of view and to hear our point of view. We do not seem to be getting that co-ordination from the manufacturers we ought to receive."

## Sheffield Trades Technical Societies.

The students who attended last session's course for Furnacemen and Stokers in Sheffield have decided to form a Technical Society and to continue their lectures next winter. They will keep in touch with the organization of Sheffield Trades Technical Societies, which is in association with the Applied Science Department of the University.



# THE GRIT EMISSION RESOLUTION

## FURTHER OBSERVATIONS

The resolution on Grit Emission adopted at the Glasgow Conference last September has been considered by numerous local authorities throughout the country, over ninety of which have addressed similar resolutions to the Minister of Health. At the meeting of the Council of the Society held on May 30th, the reply of the Minister was considered, and it was agreed that the following observations be sent to him :

The resolution on Grit Emission adopted at the Annual Conference of the National Smoke Abatement Society at Glasgow on September 28th last, was, as will be recalled, duly forwarded to you on October 4th, and we were favoured by your reply in a letter dated 21st December, 1934.

This letter has now been considered by the Council of the Society at its meeting on May 30th, and I have been instructed to forward to you the following observations.

The Resolution has been approved and adopted by at least ninety Local Authorities, which we believe indicates that the problem is common and is causing general concern.

The Report of the Electricity Commissioners on the subject, to which your reply refers, is a valuable document, especially as far as new power stations are concerned, but it does not solve the problems of existing stations. Further, it deals only with the particular case of electrical power stations and is not concerned with the grit and dust nuisances that may arise from a steam-raising plant with different characteristics.

Thus, on page 6 of the Report, the paragraph marked (1) reads :

“(1) That provided the recommendations contained in the Report are adopted, the creation of a dust nuisance in the case of new generating stations will be avoided. This conclusion is subject to the

improvement reservation that it may not be possible to give full effect to the recommendations in all existing stations.”

Again the fourth paragraph from the bottom of the same page reads as follows :—

“The Committee wish to draw special attention to the importance of the reservations referred to in Conclusion (1) above. It will readily be appreciated that there may be stations where the steps taken to avoid dust nuisance may be adequate to suit the particular local conditions, but do not necessarily conform to the recommendations made in the Report. Similarly there will, no doubt, be stations where engineering or other difficulties will prevent some or all of the recommendations being carried out.”

If there are such difficulties with regard to existing power stations we feel that they must also exist, and possibly to a far greater degree, in many smaller plants using pulverized fuel, artificial draught, etc.

Your Ministry has Inspectors under the Alkali Acts who visit works and advise and insist upon certain requirements, and a Local Authority can obtain advice and assistance in helping them with such problems.

The Council considers that similar procedure, advice, and assistance should be available to any Local Authority faced with this grit problem, and on request your Ministry's Inspector should have the power to investigate and recommend what measure should be taken to overcome the nuisance. This expert technical advice and recommendation would be the Local Authority's ground in enforcing any legal action.

A copy of this letter will be sent to the Local Authorities which have adopted and forwarded to you a similar resolution, in order that those concerned may be aware of the suggestions and observations made herein.

---

### The Manchester and District Regional Committee.

The Committee has drafted a further scheme for a proposed South-East Lancashire Joint Smoke Abatement Board, and at a meeting in the city it was approved in principle. The scheme has now to be submitted to the local authorities within the area, and makes provision for a joint board which would sub-divide the area concerned into fifteen inspectorial districts on the basis of the number of industrial chimneys. The original scheme, it may be remembered, was not pro-

ceeded with in 1931 owing to the adverse circumstances of the time.

### Coke as Fuel at Electric Power Stations.

According to the fourteenth Annual Report of the Electricity Commissioners which has recently been issued by H.M. Stationery Office, the coke breeze consumed for steam raising at electric power stations (mainly by means of the Sandwich system) for the year 1933-34 amounted to 234,438 tons. The coke breeze consumed during the year 1932-33 was 252,005 tons, according to the same authority.



# KEMPTON'S

## "KAYE" COKE FIRES

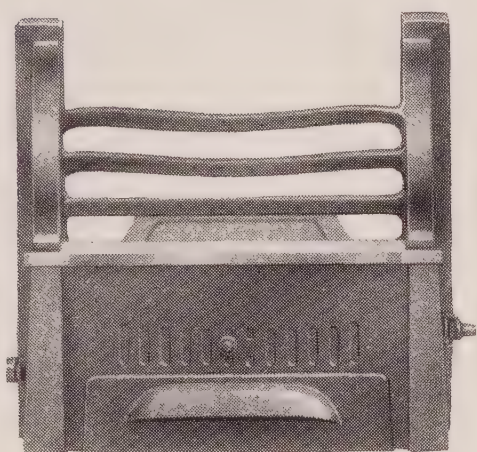
are specially designed for the efficient burning of Coke.

ALL Models fitted with the patent Rocking Bar attachment for ensuring a glowing fire.

No paper or wood required, as the fires are ignited by a gas burner.

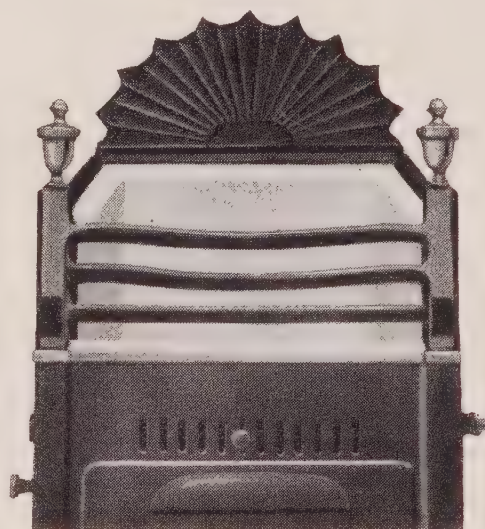
"KAYE" fires are economical to instal and maintain, and are labour saving.

COKE is cheaper than coal, clean to handle, and DOES AWAY WITH CHIMNEY SWEEPING.



"KAYE" No. 1 ADAPTER MODEL.

This fire can be fitted to any existing surround, whether iron or tiles. The surround is not interfered with in any way, only the firebricks being removed. New bricks, in sets of six are supplied for use with this pattern.



"KAYE" No. 4 BASKET MODEL.

This fire is suitable for use in a recessed fireplace with an open flue. No fixing is required.

"KAYE" Fires are made in many different styles : Complete fireplaces, Inset type, Basket, Independent, with Boiler, etc.

*Write or Telephone to :-*

**C. H. KEMPTON & CO., LTD.**  
**70 & 72 BENNERLEY ROAD, S.W.11.**

Phones : BATTERSEA 4991 (3 lines)

Head Office :-

**STANGATE HOUSE, 235 WESTMINSTER BRIDGE ROAD, S.E.1.**

Phones : WATERLOO 5535 (2 lines)

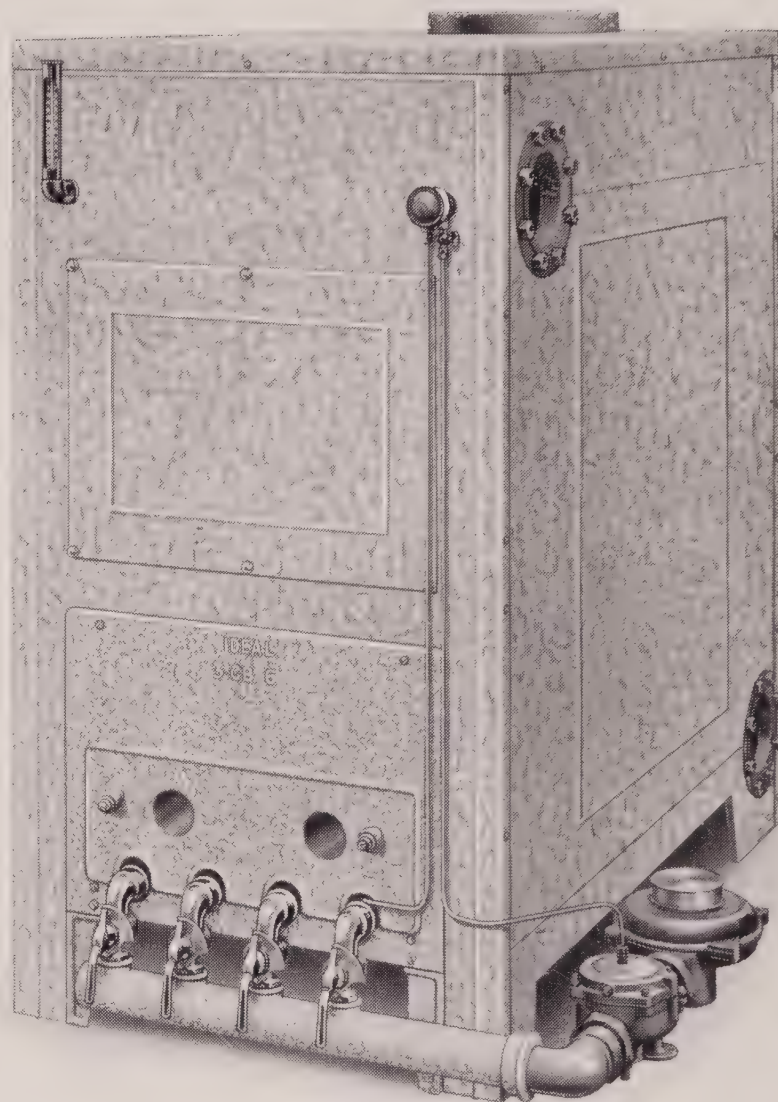


# IDEAL

## GAS BOILERS

**No smoke  
No dirt  
Efficient  
performance**

Clean and economical in operation, neat in appearance and reliable, Ideal Gas Boilers obviate the necessity for fuel storage space and stoking. For central heating and hot water supply the increased range now available offers a suitable size of Gas Boiler for all buildings where cleanliness, economy and saving of labour are important factors.



**STRONG CONSTRUCTION - GAS TIGHT JOINTS  
QUIET BURNING - COMPLETE COMBUSTION OF GAS  
AUTOMATIC CONTROL - NO FUEL STORAGE**

*Illustrated list sent on request*

**IDEAL BOILERS & RADIATORS**  
LIMITED  
**IDEAL WORKS, HULL, YORKS.**

*Showrooms :*

LONDON : Ideal House, Great Marlborough Street, W.1.  
BIRMINGHAM : 35 Paradise Street. Also at HULL.





*King Street, Manchester.*

*See page 97.*

# THE JOURNAL OF THE NATIONAL SMOKE ABATEMENT SOCIETY

---

VOL. VI.  
NO. 24.

NOVEMBER  
1935

PUBLISHED  
QUARTERLY  
2/6 a year



# WARMTH WITHOUT SMOKE

---

COAL, COKE, GAS, OIL or ELECTRICITY?

---

CONSULT

## SAUNDERS & TAYLOR LTD.

Warming, Ventilating and General Engineers

Praed Rd. Trafford Park,  
MANCHESTER

Telephone TRA 1006

11 Dyers' Buildings,  
HOLBORN,  
LONDON, E.C. 1.

Telephone Holborn 9931

G. N.  
*Estab.* 1816

**HADEN** & SONS  
LIMITED

---

HEATING, VENTILATING, ELECTRICAL  
and DOMESTIC ENGINEERS

---

SMOKELESS and ECONOMICAL COMBUSTION  
ENSURED WITH A HADEN INSTALLATION

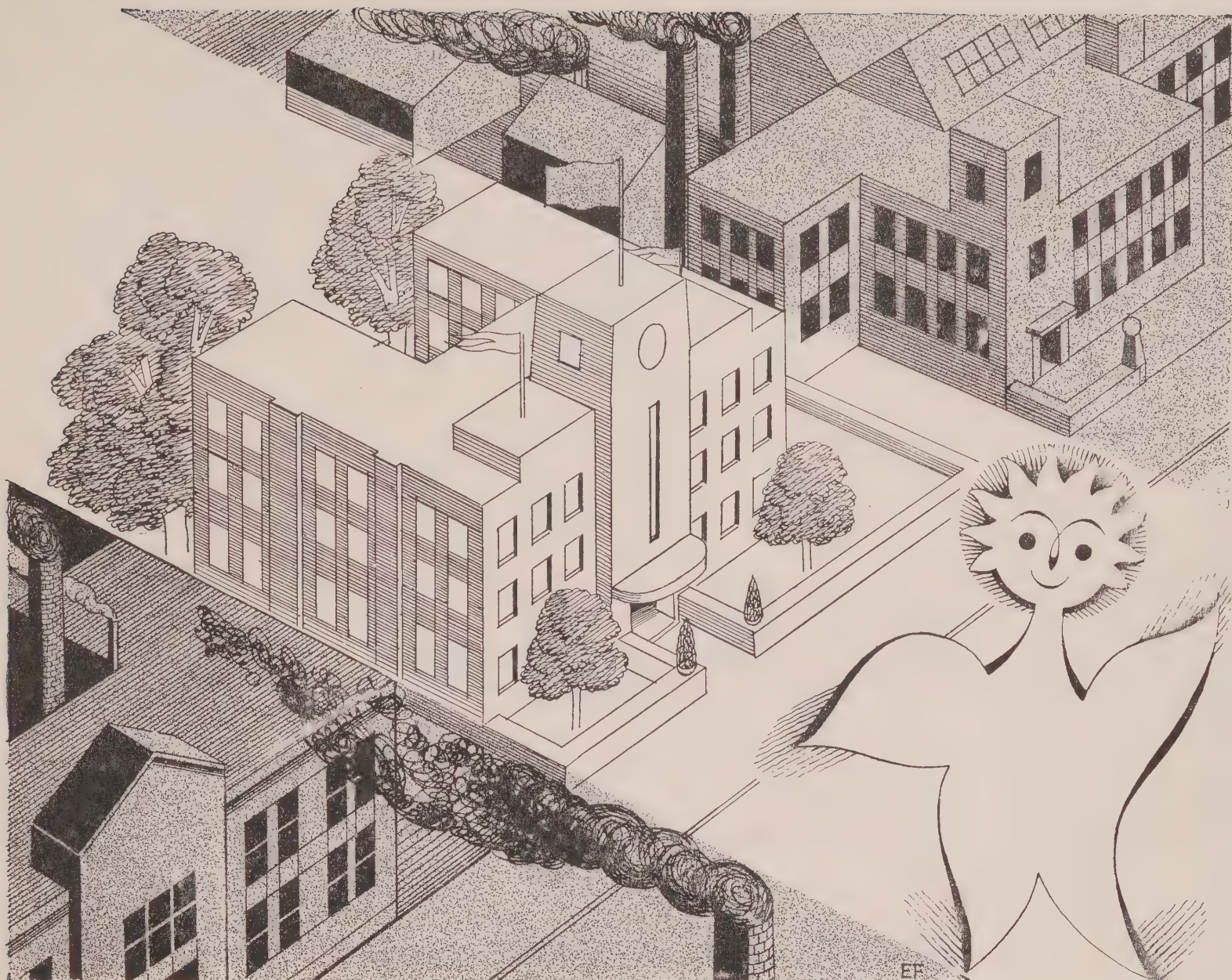
---

LINCOLN HOUSE, 60, KINGSWAY, LONDON, W.C.2

PHONE :—HOLBORN 7800 (10 lines)

ALSO AT TROWBRIDGE, MANCHESTER, BIRMINGHAM, GLASGOW,  
NEWCASTLE, LIVERPOOL, BOURNEMOUTH, BRISTOL, TORQUAY,  
EASTBOURNE, LINCOLN, CANTERBURY, YORK, DUBLIN





# “Let in the daylight”

says Mr. **THERM**

Industrialists are hardly unselfish enough (generally) to turn to gas **simply** because it makes no smoke.

They have other, more cogent reasons, too. It is cheap—not only on actual cost, but on what it saves in labour. And it is so readily controlled.

*For literature on gas in relation to smoke abatement, please write to the*

**BRITISH COMMERCIAL GAS ASSOCIATION, 28 GROSVENOR GARDENS, LONDON, S.W.1.**



## BABCOCK & WILCOX LTD.

issue from time to time reprints of technical articles of which the following are typical. Copies of these and others can be obtained on application to the nearest branch office or representative.

**No. 1141a**

**RESEARCH WORK AT  
RENFREW.**

**No. 1179**

**THE REDUCTION OF COAL  
SAMPLES FOR ANALYSIS.**

**No. 1182**

**BOILER INSPECTION DURING  
MANUFACTURE AND  
ERECTION.**

**No. 1192**

**MODERN METHODS OF  
INDICATING WATER LEVEL  
IN BOILER DRUMS.**

The above are typical of the development work which lies behind any Babcock and Wilcox installation.

## BABCOCK & WILCOX LTD.

BABCOCK HOUSE, FARRINGDON STREET, LONDON, E.C.4

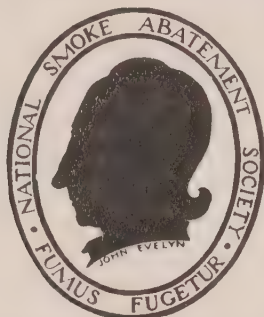


# The Journal of the National Smoke Abatement Society

Editor : ARNOLD MARSH, M.Sc.Tech.

Editorial Office :  
36, King Street,  
Manchester, 2.

Telephone : Blackfriars 0896.



Advertisement Office :  
The Service Guild Ltd.,  
49, Deansgate, Manchester, 3  
Telephone : Blackfriars 3313

Vol. 6. No. 24.

November, 1935.

## Principal Contents.

	Page		Page
Commentary .. .. .	87	The Attack upon Health ; an Edinburgh Meeting .. .. .	101
Barbarism, by Dr. H. A. Des Voeux .. .. .	89	Bristol, by "Onlooker" .. .. .	103
Do You Like Fogs? by A. J. Martin, M.Inst. C.E.	95	Smoke Abatement from a Manager's View-point, by W. H. Nield .. .. .	107
Every Picture Tells a Story : the Cover Photograph .. .. .	97	Publications Received .. .. .	113
Press Cuttings .. .. .	99	News and Views .. .. .	115

The Journal is open for free discussion of all aspects of the smoke problem, and the opinions expressed in contributed articles are not necessarily the same as the views of the Society. Quotations and abstraction of matter appearing in the Journal is welcomed, provided the usual acknowledgments are made.

## COMMENTARY

SO many things have been happening lately that it is becoming difficult to give adequate notice of all of them in the *Journal*. Our space is limited and has to contain news of the events of three months as well as articles of general interest, and, as on the front page of a popular newspaper, there must be an attempt to interest all readers. It is a sign of the times that we should be feeling the need for more space or a shorter interval between issues. Smoke abatement is in the air more and more. The pace is accelerating.

This is reflected in the Press and in events and activities, that, until they are made public, were outside the Society's ken. It is, indeed, becoming rather difficult to keep in touch with everybody and everything. Possibly one of these days we shall be able to stand by and watch an irresistible snowball crash its way through obstacles that now look so great. But one must

not be too optimistic : the snowball at present is only a midget, and even though it is now steadily rolling, it will need to be pushed, and pushed harder, for a long time to come.

Although the extract is quoted in the Annual Report, it may be useful to repeat it here as an indication of how this change in public opinion has been noted by an independent authority, which, because it is outside the movement, is more qualified to judge than we who are in the midst of things. The paragraph is from the Annual Report on Alkali, &c., Works, presented to the Minister of Health by the Chief Inspector. It reads : "There is no doubt that the public is concerned more than ever about air cleanliness, both as regards pollution by smoke and dust as well as by offensive gases. Local authorities, too, are becoming more interested and have frequently appealed to the Ministry for advice and assistance in dealing with difficult problems."



The paper read to the West Riding of Yorkshire Regional Committee by Mr. W. H. Nield, which is printed in this issue, contains some interesting suggestions, which in effect are to establish associations of manufacturers on the lines of the famous "Hamburg League," or more correctly the Hamburg League for Furnace Management and Smoke Prevention. This has been in existence for many years and has done an immense amount of good, by co-operation, in reducing the smoke and the fuel bills of its members. An attempt was made to create interest in such a project in this country in 1914, by the Smoke Abatement League of Great Britain, but the scheme was killed by the war and has never been properly examined since then. The Executive Committee of the Society has appointed a sub-committee to consider whether any action on such lines could be promoted now. In the meantime, however, Mr. Nield's paper may provoke thought and perhaps discussion, and we should be grateful for the views of readers on the subject.

---

The writer of the article which on another page gives some impressions of the Bristol Conference argues that Bristol—and presumably similar towns in the south—is clean enough to appreciate cleanliness and has a much greater sympathy for smoke abatement than the smokier and dirtier towns in which "the people are so inured to their condition that, except for an enlightened minority, their imaginations cannot grasp the possibilities of cleanliness." One may doubt whether this is true as far as domestic cleanliness is concerned, even though it may be so in any wider sense. The famous door-steps of Lancashire, for instance, so assiduously cleaned by "house proud" wives, are chiefly noticeable because of their sharp contrast with the grimy walls and general uncared-for drabness that surrounds them. Not only is there still that pathetic belief that smoke means industry and prosperity, but there is an even more tragic inability to see the smoke and to realize that

dirt and gloom and miserable drabness are not natural things, like the snow and the rain, but are man-made, remediable evils.

---

This generalization seems to be supported by the result, up-to-date, of an appeal the Society has addressed during the summer to Local Authorities throughout the country. Twenty-seven new authorities have, as a result of this, become affiliated, of which nineteen are situated in the southern and less smoky, part of the country. Most of the large authorities in the north, thanks to the enlightened minority previously mentioned, were of course already affiliated, and that may alter the significance of the figures. Nevertheless on reading the list, and noting the replies from small authorities in the north and in the south, one cannot help feeling that the cleaner south wants smoke abatement more, even if it needs it less, than the dirtier north. Southend-on-Sea, for instance, agrees to help. Blackpool, on the fringe of the enormous Lancashire smoke pall, declines.

---

It has not been possible to include in this number the second article of the series on the smoke problem considered regionally, but in January we hope to publish one dealing with the Midlands, by Mr. E. Harrold, Chief Sanitary Inspector for Oldbury and a member of the Midlands Joint Advisory Council. Following that we hope to have an article dealing with the position in the Sheffield area by Mr. James Law, Chief Smoke Inspector for the Sheffield, Rotherham, and District Committee.

---

#### Lord Rutherford.

Lord Rutherford, proposing the toast of "The Fuel Industry" at the annual dinner of the Institute of Fuel on October 9th said that on an average we did not use more than 25 per cent. of the total energy of coal. Burning was the most wasteful method of producing energy. After all, when we came back to the sources of energy available we would in time get back to old King Coal.



# BARBARISM

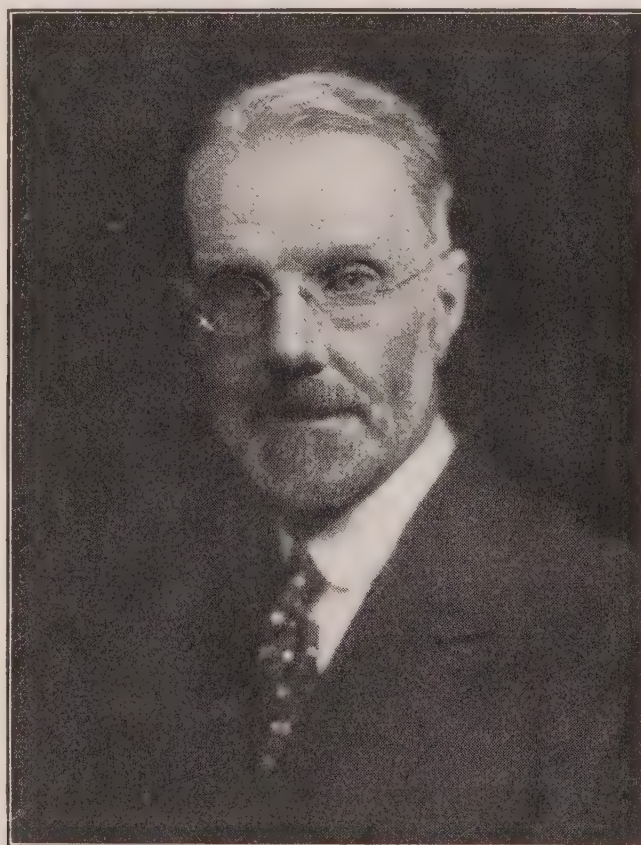
## DR. H. A. DES VOEUX'S PRESIDENTIAL ADDRESS AT BRISTOL

Difficult it is to see ourselves as others see us, not merely do I mean this in reference to our personal appearance which we can fondly appreciate—or dislike—when we are vain enough to consult a mirror, but more particularly our character, our behaviour, our thoughts and intentions. We find that we are frequently misunderstood in our meanings when in conversation with friends and connections on matters which are controversial or even unequivocal. But when we come to consider groups of people and aggregates the views which we take are often quite at variance with theirs, and thence arise the terrible tragedies of quarrels and finally wars.

civilized? Each sees the other in a different light, and who is to be the judge?

When we come to consider the question of Barbarism, what points are we to seek. The word itself signifies the language of illiterate people, which was mostly onomatopoeic.

If I remember correctly the first people to use the word were the Athenians, who called the Macedonians Barbarians. And why? The former were great in all scientific, literary, and musical art, and probably the finest architects that the world has ever known. The latter were wild uneducated people, always at war and



The President.

What is the character of the English? Why are they so often called and thought of as hypocrites? What do we think of Americans, and what do they think of us? Similarly with the French and Germans, and at the present moment the Italians. The latter, under their present regime, have become one of the leading nations of the world and feel, as we have often done, the intense urge to find openings in the vast unoccupied spaces for their overcrowded population almost as dense as ours, and with few of the natural advantages that we enjoy. Can we see their point of view, or are they correct in calling us hypocrites? Are the Abyssinians barbarians, and are the Italians

entirely ignorant: but they produced the two greatest warriors of ancient times—Philip and his godlike son, Alexander the Great, probably the finest General of all time. And yet they were Barbarians. Philip did not appreciate this, but Alexander did, and one of his great ambitions was to introduce into his country the culture of Athens, the pursuit of which he originated but did not live to continue.

Similarly we find that the next conquering and educated nation of the world, the Romans, looked upon the rest of the known world as Barbarians, amongst whom the Britons of this country were numbered. Did they come here for their good or for ours?



FOR CLEAN AIR AND  
MAXIMUM SUNLIGHT

USE THE SMOKELESS COAL  
NATURE HAS HERSELF PROVIDED

# ANTHRACITE

---



ABSOLUTELY SMOKELESS

HIGHEST IN CARBON, LOWEST IN ASH

VERY SLOW BURNING

SAFE, CLEAN AND ECONOMICAL IN USE

MINIMUM ATTENTION—IT NEVER GOES OUT

THE BEST FUEL FOR—

DOMESTIC HOT WATER BOILERS

CENTRAL HEATING

OFFICE, WAREHOUSE, GREENHOUSE AND GARAGE HEATING



*ENQUIRIES AND DESCRIPTIVE LEAFLETS :—*

**AMALGAMATED ANTHRACITE COLLIERIES LTD.**

11, OLD JEWRY,  
LONDON, E.C. 2.



Was it our ambition or was it greed? We know the view taken by the Romans, but what was that taken by the Britons? I cannot say, but certain it is that the conquerors left as a legacy much of what we know now as our civilization, a great part of which was destroyed by the Barbarian Saxons. I think that I am correct in saying that a large proportion of our language is of Roman origin, that the fundamental laws of our country are Roman, and that our most precious possession—Freedom—we learnt from them; freedom and the ideals of freedom. Individual freedom of thought and action, so long as they were not used to the detriment of others. That we have callously misused this freedom is not open to doubt, but through the instinct of an educated democracy, we are improving slowly but surely, and though the constructive ability and idealism of a great dictator may work wonders for a country, they can only exist for the span of one life and leave foundations, some good, some bad.

This freedom which we are now discussing has been terribly abused since the commencement of the great industrial age. The aggregation of manufacturies in suitable places—suitable on account of the proximity of coal and iron to our sea coast and its harbours—caused an intensification of population, attracting the poorer agricultural labourers to those centres which offered them higher wages and more continuous work, unavailable in more sparsely populated districts.

#### Like Sardines in a Tin.

But individual freedom called forth no united action to avoid overcrowding, bad housing, or control over atmospheric pollution. Hence we have the stubborn and onerous problem of dealing with these matters at enormous expense and against the active opposition of interested parties. At long last this great wave of resistance is breaking on the shores of public conscience, and subsiding. We have for a hundred years or more been clustering like sardines in a tin under the smoke pall of our "enlightened" cities, and admiring our superiority over primitive man, who, I am told, often thinks of our boasting about our civilization as so much hot air. We who have had at our command all the wisdom of the poets and ability of scientists, should surely be able to refute the charge of Barbarism. But what would the denizen of another planet think of a race which callously allows the filth of smoke to be regarded as a natural element? "Barbarous" he would say, and apply his handkerchief to his nose and filter out the offensive and irritating emanations. Primitive man sitting in his cave in a cloud of wood smoke was not so foolish. He took an intelligent interest in smoke and had his theories about it. And so have his descendants to this day (the *Golden Bough*, pages 73, etc.). Certain natives burn the stomach of an ox in the evening believing that the smoke will gather clouds and bring rain in the morning. In Hindu Koosh the priestess stupefies herself by inhaling the smoke from a fire of the sacred cedar, over which she crouches with a cloth

over her head until she goes into convulsions due to the asphyxiating effect. When she recovers from this state her words are considered oracular and prophetic. In the Eiffel mountains at Lent a beech tree was fired by straw and brushwood, and a strawman burnt in it—a relic no doubt, of some ancient ritual with a living victim. If the smoke blew upwards it was a sign that the harvest would be abundant. Another custom was for boys to burn bones and filth in order to produce foul smoke to drive away dragons which were poisoning wells. The Slavonic peasant still believes that witches exist in black hail clouds, and brings a pot of charcoal on which he throws holy oil, laurel leaves, and wormwood, crying "Curse, curse, Herodias, thy mother is a heathen damned by God." The fumes arise, stupefy the witches, who crash to earth, and the fall is made as painful as possible by laying out scythes and bill-hooks upturned and chairs with the legs in the air, so that the witches may break their bones.

These people had some logic in their creation of smoke—we have none. We do not believe that smoke will create rain, or that it will make us inspired prophets, and we know that agriculturists find smoke the reverse of beneficial to crops. We can claim that the miasma hovering over our cities brings devils and witches tumbling from the clouds—in the shape of disease and dirt, but the descent is more harmful to the inhabitants than the witches. Primitive man had therefore a social conscience for his rites were intended to benefit all, while we are content, if the smoke does not come on to our faces from a down draught, that it injures our neighbour and not ourselves. The history of the chimney is instructive in showing how gracefully the pleasures and arts of civilization can mask the barbaric foundation of our character.

The need of a hole in the roof was only appreciated when braziers were replaced by fireplaces, and it was as late as the 12th century when the roof-hole was replaced by a hollow flue from the fireplace, by the side of the wall. In the 13th and 14th centuries appeared the round vertical stone conduit with a conical gap. The 15th century saw the grouping of chimneys as we now find them, and the commencement of ornamentation with Gothic pinnacles, heraldic ornaments, pilasters and entablatures. Diaper work or spiral decoration now became the exquisite Tudor chimney, with its various forms. But even as late as that the peasant was satisfied with his hole in the roof, later supplemented by a small barrel shaft built into his turf roof. Bishop Hall wrote in 1620:—

"God wot! a silly Cote

Whose thatched spars are furred with sluttish soot,

A whole inch thick, and hung like Blackamoor's brows,

Through smoke that down the headless barrel blew."

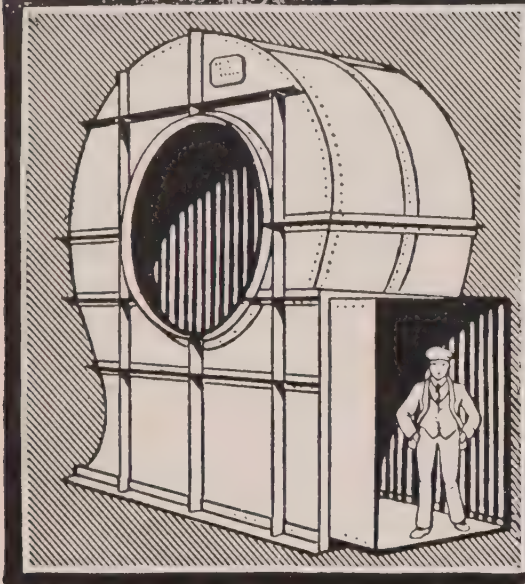


# BOILER EFFICIENCY FUEL ECONOMY

Science never ceases to re-examine old problems. The "Cyclone" system of Induced Draught represents the application of the latest scientific principles.

The "Cyclone" system eliminates the necessity of high temperature in gases passing from the chimney—and thus it eliminates black smoke. This heat (once wasted) is transformed into power, spelling an increase of steam power and a decrease of fuel costs.

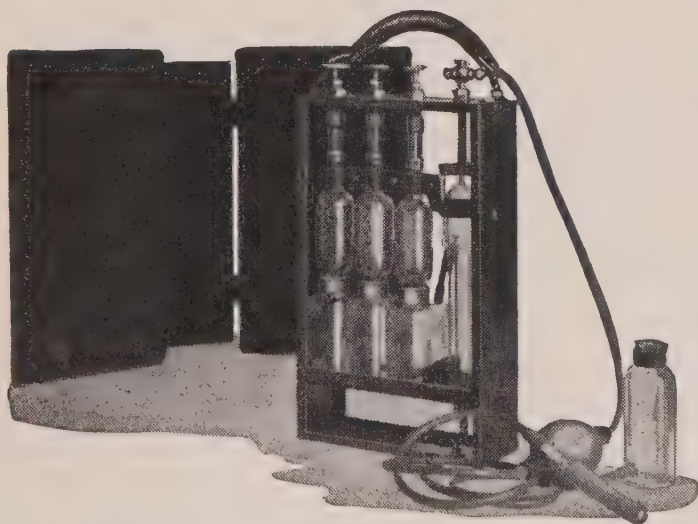
Initial cost of installation is low. Brochure 66 F gives convincing facts—please write for it.



**MATTHEWS  
& YATES LTD**  
SWINTON MANCHESTER

London Office: 20 BEDFORD ROW, W.C.1

**BLACK SMOKE** indicates  
incomplete combustion



HAYS PORTABLE GAS ANALYSER.

Analysing the Boiler Flue gases with the above analyser will enable you to increase the combustion efficiency and prevent black smoke.

Full particulars from  
**DUGUIDS LTD., LYMM, Cheshire**

**EVAPORATION  
INCREASED 20%**

By USING

**SEOTOO  
FLUE GAS  
CARBURETTORS**

•  
"AIRKOOLD"  
GRATE BARS  
—LONG LIFE—  
IN BOILER FURNACES

For Particulars Apply to:

**S—MOKE P—REVENTION L—TD.**

1 Victoria St., London. S.W.1

Telephone: ABBEY 1671



So the beer barrel evidently was not as effective as was expected.

Even to-day chimneys are constructed of wicker and thatch in some parts of Wales. During the 18th century chimney design fell into decay, owing to the invention of the ugly but effective chimney pot. A problem with architects has always been to find an effective outlet for the smoke, never have they considered it their duty to minimize the smoke nuisance. This was an unimportant omission while the smoke was as innocuous as that from wood or peat, but with the advent as early as 1306 of the coal fire, the importance of coal smoke began to be appreciated, and a Royal Proclamation was issued forbidding the use of coal in London. Six hundred years have passed, and yet we have not settled the problem! Indeed the English are a slow people!

The history of the efforts by rulers to prohibit the use of coal is well known to you all, including the prohibition, while Parliament was sitting, in Elizabeth's reign. But the first recognition by the people themselves, of which I am aware was when in 1648 the citizens of London petitioned that the importation of coal from Newcastle should be prohibited on account of the injury it caused. But they were too late, for Parliament, like the old witch, was already accustomed to the asphyxiating effect, and hoped that the smoke would produce an oracular state of mind. Even to-day the minds of our legislators seem to be blurred and apathetic to this subject. One great event which marks an era in our cause was the publication of John Evelyn's "Fumifugium" in 1661, with his remarkable statement "that this glorious and ancient City" (of London) "which from wood might be rendered brick (like another Rome) from brick made stone and marble; which commands the proud ocean of the Indies and reaches the furthest Antipodes should wrap her stately head in clouds of smoke and sulphure, so full of Stink and Darkness, I deplore with just indignation" and then refers to the illnesses already recognized as being caused thereby. Interesting it is to note that he refers not only to the Darkness but to the "Stink" which in all probability he associated with the Sulphur to which he draws attention. His sentence in which he attributes "the distempers" to the "Hellish and dismall cloud of Sea-Coale perpetually imminent over the head of the City" is a motto which ought to be printed in large type, framed, and hung on the wall behind the Mayor's Chair in every city; with the addition "Hell's hell, and when there study to improve."

We must remember that in Evelyn's day the industrial chimney was unknown, and that he was simply referring to the domestic chimney, and perhaps small fires from such places as laundries and bakehouses. It was not until 160 years later that Parliament began to take cognizance of the serious effects of smoke and appointed a committee to enquire into it and other 100 years has

passed and still there are local authorities who believe that "Muck means Brass."

### The Barbaric Mind.

It is over 30 years since our Society commenced the preaching of clean air, and though much has been accomplished in that time, we have still a long way to go before our ideal is reached. Legislation can do good, but the great good can only come from education, education which will teach every inhabitant of this country that smoke in the atmosphere, from any and every service is a sign of wasted coal, and that it is not only destructive to our great buildings, our vegetation, and everything that we possess, but it is a signal that Barbarism is still in our nature and that with all our education and civilization we are unable to appreciate that smoke is not a product of nature, or a natural constituent of the atmosphere, but that it is created by man for his comfort and convenience, and that it is our want of recognition of what is true civilization which allows this fouling of our atmosphere without an attempt at its prevention or even reduction. It is only of quite recent years that manufacturers have attempted anything valuable towards the improvement of our great cities. They built their factories, plain, ugly, offensive, like prison buildings, and as soon as they were rich enough, fled from these hideous, dirt-producing erections, and built tenements for their work-people who were born and bred in these filthy surroundings, while they spent all their free time in beautiful places far away from the evils which they had created. Could none of them have seen the value of our cathedrals and other ancient buildings? Could none of them have learned the lesson that cleanliness was as important for their operatives as for themselves? Could none of them, when designing a factory, have taken a lesson from the nearest cathedral with its beautiful precincts and closes, where the Dean and the Canons and all attendant Clergy can live and enjoy their surroundings? Why must it be imperative for a rich manufacturer to live ten miles from the source of wealth, which ought to be not only his work but his pleasure and pride?

A Barbaric mind surely at work! No altruism. A purely material outlook, selfish to a degree that hardly can be fathomed.

A slow change seems to be occurring, but it is slow and faltering, and he must be a persistent optimist who can to-day visualize the beautiful manufacturing city of the future, built and designed not only for the making of money but for its educative value on the young lives of the future; beauty to be seen in the streets and in the houses; beauty and cleanliness which will be steeped in the blood and bones of children; beauty in surroundings which can never be forgotten, and by which they will learn that dirt and ugliness are a sin against nature and art, and which will guide them to future health and happiness.

Not until that day dawns can we assert that we have thrown off Barbarism and become civilized.

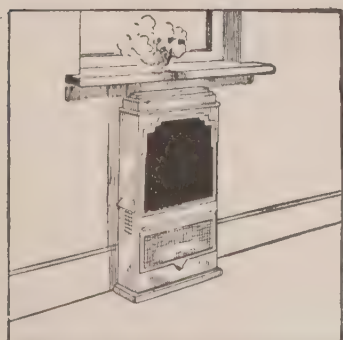


# NEATER HEATING

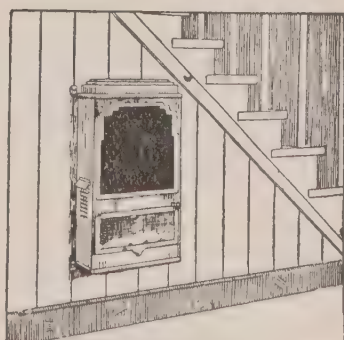


## RADIANT-PANEL GAS HEATERS

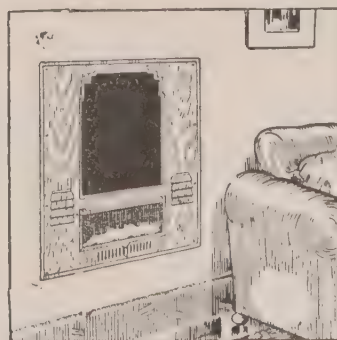
These Heaters take up one quarter the room required for a chair. They emit ample **radiant** heat, there is in addition a cheerful glow from the burners. The three sizes and various adaptations meet a wide range of domestic and general heating requirements. In eighteen attractive finishes. Prices from £3.



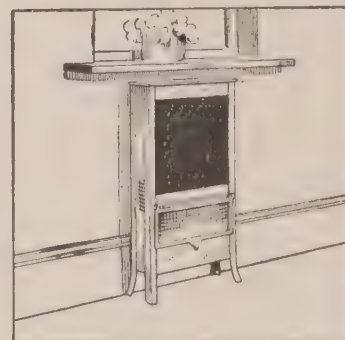
Dwarf "Moderne" Model



Elevated "Moderne" Model



Built-in "Moderne" Model



Dwarf "Utility" Model

**FLAVELS**  
*of* LEAMINGTON

*Stovemakers Established in 1777*  
PLEASE WRITE FOR LIST TO OUR LONDON FIREPLACE GALLERIES  
**38 Welbeck Street, London, W.1**



# DO YOU LIKE FOGS?

## AN INTERVIEW WITH A PROSPEROUS AND ENLIGHTENED CITIZEN

*This Conversation, by Arthur S. Martin, M.Inst.C.E., etc., in an adapted form was used in a B.B.C. broadcast last winter.*

"Do you like fogs?"

"What the H . . . .?"

"Do be careful! the type won't stand more than a certain temperature. And you really ought to remember that warning the doctor gave you about your tendency to apoplexy. Again I ask you 'Do you like fogs?'"

"Certainly not. You know how I loathe the beastly things."

"Then why, in the name of all that's holy, do you persist in making them?—Now don't get excited again."

"But how can I help it if you will ask such silly questions? You know as well as I do that the fogs we get are the result of purely natural causes. London is situated on low-lying ground on the banks of a big river. In certain states of the atmosphere you are bound to get a fog."

"Quite so, but not the sort of fog we have been getting all this week: a fog that fouls your palate and stings your eyes so that you can hardly keep them open: a fog that spreads over London, like a pall, and which the sun, shine how he may, can't chase away. Old Father Thames never made a fog like that. All he does is to supply one of the raw materials which go to make up that diabolical concoction of yours. You have fogs in the country too; but you never get a fog like that."

"Of course you don't. But the country's one thing. A big city like London's another."

"I agree. But New York's a big city too. It's not far short of London in point of population; but you never saw a fog like the one we had last night in New York, or for that matter in any other city that has sense enough and self-respect enough to use its coal in a proper way."

"Let me just remind you how you set to work to make your fogs. You chuck a shovelful of coal on to the fire. You send a flood of foul black smoke up the chimney. Do you happen to know that for every pound of coal you put on the fire you don't burn more than about fifteen ounces? One ounce out of every pound goes up the chimney in the form of soot. Think of it, two and a half or three million tons of good coal going to waste up the chimney every year! And that's household coal only. I say nothing about the scores of millions of tons that are burnt in our factories and electricity works and locomotives."

"Just work it out. Two and a half million tons at 45/- a ton. It's a tidy bit of money to throw away. And that's not the worst of it. What you pay for the coal you waste is a bagatelle compared with the mischief you do with it. Take London. Look at the Houses of Parliament. Look at Buckingham Palace. Look at

Westminster Abbey or any other stone building; and you will see the masonry coated with grime and crumbling away and perishing through the sulphur acids that you send out with your smoke. It will cost somebody a pretty penny to put all that damage right by and by. Think of all the painting and decorating that has to be done over and over again every two or three years. 'Good for trade,' you say. Perhaps you're in that line of business yourself. But think of the poor beggars who have to pay for it."

### Its Life in its Hands.

"And then there's your weekly washing bill. Do you ever happen to hear what your wife says when she sees the state the window curtains get in? And your collars too. A collar takes its life in its hands every time it goes to the wash. And the time and trouble it takes trying to keep yourself clean. Even Mr. Bernard Shaw, since he came to live in London, has had to take to washing himself. He said so himself at a public meeting. I heard him."

"It makes a tidy bill when you add it all up. They have totted it up in Pittsburgh: and they find that the damage done by smoke in one year works out at £4 for every man, woman and child in the city. It may be a bit less in London. Suppose we call it £15,000,000 a year. £15,000,000 is a lot of money to pay for your carelessness with the coal-scuttle."

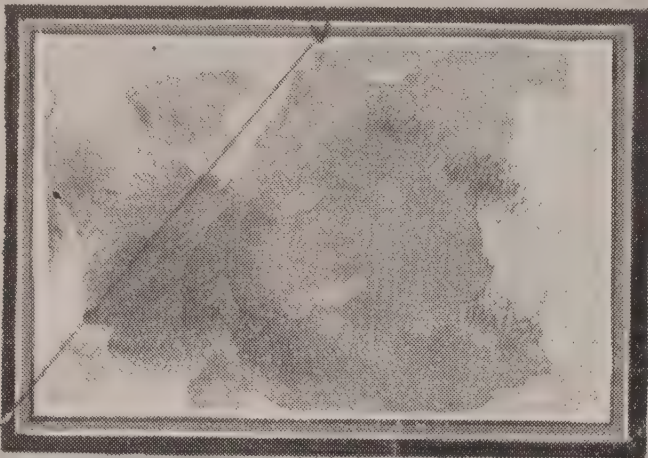
"And that's not all the harm it does by a long way. I suppose you set some value on your time. How about the hours you waste groping about London in a fog; the time you spend at the station waiting for the train to take you back from the city; the interminable crawling journey while your dinner and your wife's temper are spoiling at home? And after all, you do have a comfortable first-class carriage to travel in. What about the poor devils on the footplate, peering for the signals through the stinging fog in order that your precious life may not be endangered? You ought to take off your hat to those men."

"The sun is the mortal enemy of fogs. He will nip them in the bud if you give him half a chance. But you don't! You give the fog a fine smoke screen to form behind, out of reach of the sun, and you wrap every little particle of moisture in an oily tarry coat which his rays cannot possibly pierce."

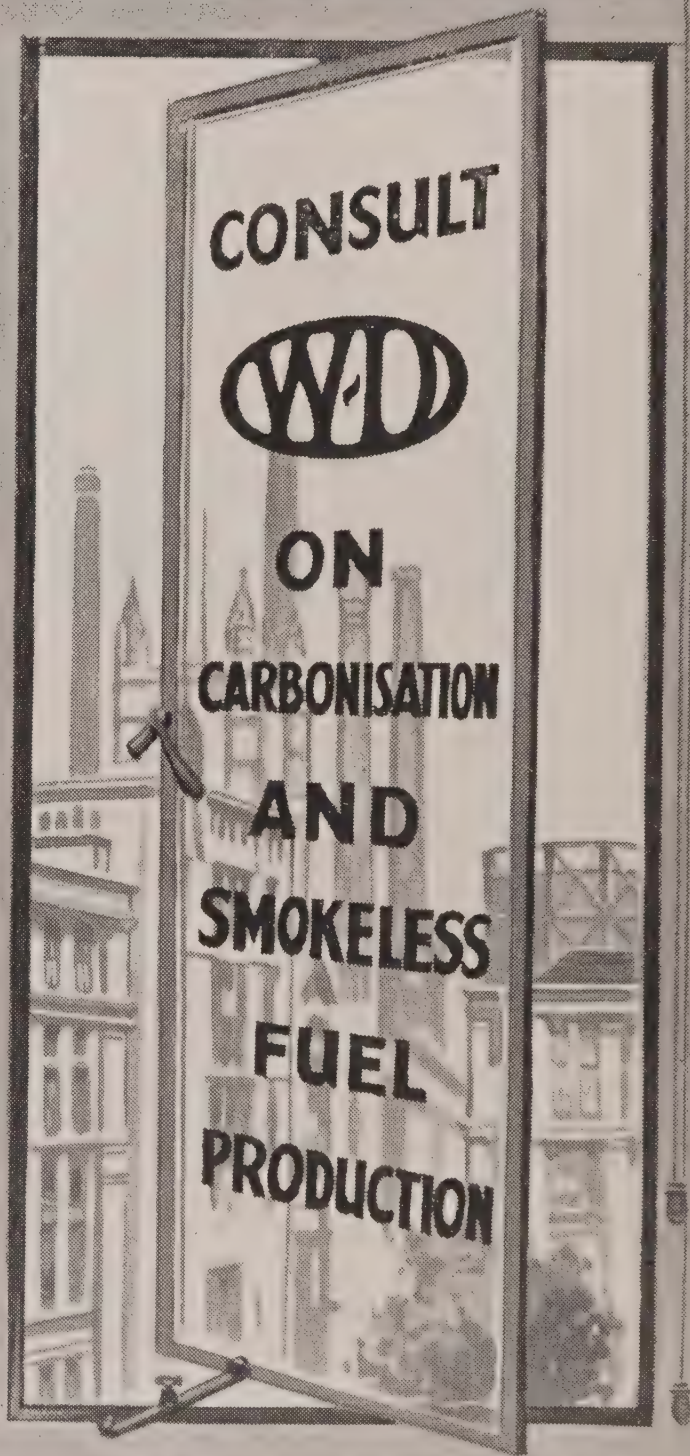
### An Ounce per Pound.

"Remember that you send out an ounce of soot for every pound of coal you put on the fire; and an ounce of soot will blacken a bigish lot of air. On a winter's day our London chimneys belch forth something like





**OUR IDEAL -  
A SMOKELESS  
CITY**



THE WOODALL-DUCKHAM VERTICAL RETORT & OVEN  
CONSTRUCTION COMPANY (1920) LIMITED  
EBURY & ALLINGTON HOUSES, 136-150 VICTORIA ST., LONDON, S.W.1



100,000,000 ounces of soot. It doesn't matter so much when there's a wind blowing to carry it off. But when the air is quite still, and you go on loading it with something like 3,000 tons of soot day after day—three tons for every minute of your waking hours—can you wonder that you can't see the sun for weeks at a time?

"It isn't as if it were only dead things like masonry and decorations that suffer from smoke and fog. The acid fumes that you pour up your chimney are hurtful to every living thing that comes in their way. Every tree and shrub and blade of grass in London is poisoned and stunted by *your* smoke. Did you ever examine a laurel bush in one of our city gardens? Did you notice the black tarry coating that choked every pore of its leaves? How about the men and women and children who have to breathe this foul stuff day after day? What must it mean to their lungs?

"Have you ever had asthma? It would do you good to have just one night of it—to sit up in your bed for one interminable night, hour after anguished hour, fighting for every breath. You would know then what a London fog means to your fellow-creatures who are unfortunate enough to suffer from chest complaints. Every fog we get carries them off by the hundred and leaves an untold mass of misery behind. You said some pretty

strong things about the Germans for using poison gas against their enemies when they were fighting with their backs to the wall. Why do you use it against your own fellow-countrymen?

"Have you ever seen a plant which has been grown in the dark—a spray of ivy say, with its stems and leaves all blanched for want of sunlight? Human beings require sunlight as well as plants. How about the hundreds and thousands of babies and little children who are pining for want of the sunshine that is shut out from them by *your* smoke? *You* can get away from the smoke and fogs of London into the sunshine and fresh air of the country. You might spare a thought for the poor wretches who can't.

"Some people have a mortal terror of Bolsheviks. Let me tell you how to make a Bolshevik. Take a human being and keep him in a place where the sun never shines for weeks at a time. Fill the air with a foul black fog that chokes his lungs and hurts his eyes. Is it any wonder that it darkens his soul and poisons his outlook on life? If you think so, you might change places with him for just one winter.

"If you want to keep people happy and contented, sound in body and sane in mind, do, in the name of humanity and commonsense, let a little sunshine into their lives."

---

## EVERY PICTURE TELLS A STORY

### THE COVER PHOTOGRAPH

---

Some of Manchester's most notable buildings in recent years have been erected in and near to King Street in the centre of the city. The photograph on the cover shows the new Midland Bank building, gleaming with whiteness and cleanliness and making a brilliant contrast with its neighbours.

Above it, on the left and at right-angles, is an older bank building of Yorkshire stone, which was thoroughly cleaned down ten years ago. On the extreme right is the Ship Canal Building, which was completed in the summer of 1927. Flush with and adjoining this, nearer to the Midland Bank, is Atlas Building, which was finished in 1929.

These two buildings, and the Bank, are of Portland stone, and looking from left to right, their ages are: one month, six years, and eight years. When the two older buildings were completed they too were as white as their new neighbour and excited the same pleasurable interest that is now being given to the Bank. The slightly lighter appearance of Atlas Building, compared with Ship Canal Building on its right, due to the two year's difference, can be detected.

Comment is needless. We know why our magnificent buildings are ruined so quickly, and so, nowadays, does everybody. It has been said that corporations have no souls, and one feels it must be true, or the corporations that spend so much on buildings that possess their full beauty for only a fleeting moment, would surely see for themselves the moral that our photograph conveys.

In three or four years time we may publish another photograph from the same viewpoint. But the uniform drabness that will then be recorded can even now be readily imagined.

---

### Regional Committee Reports.

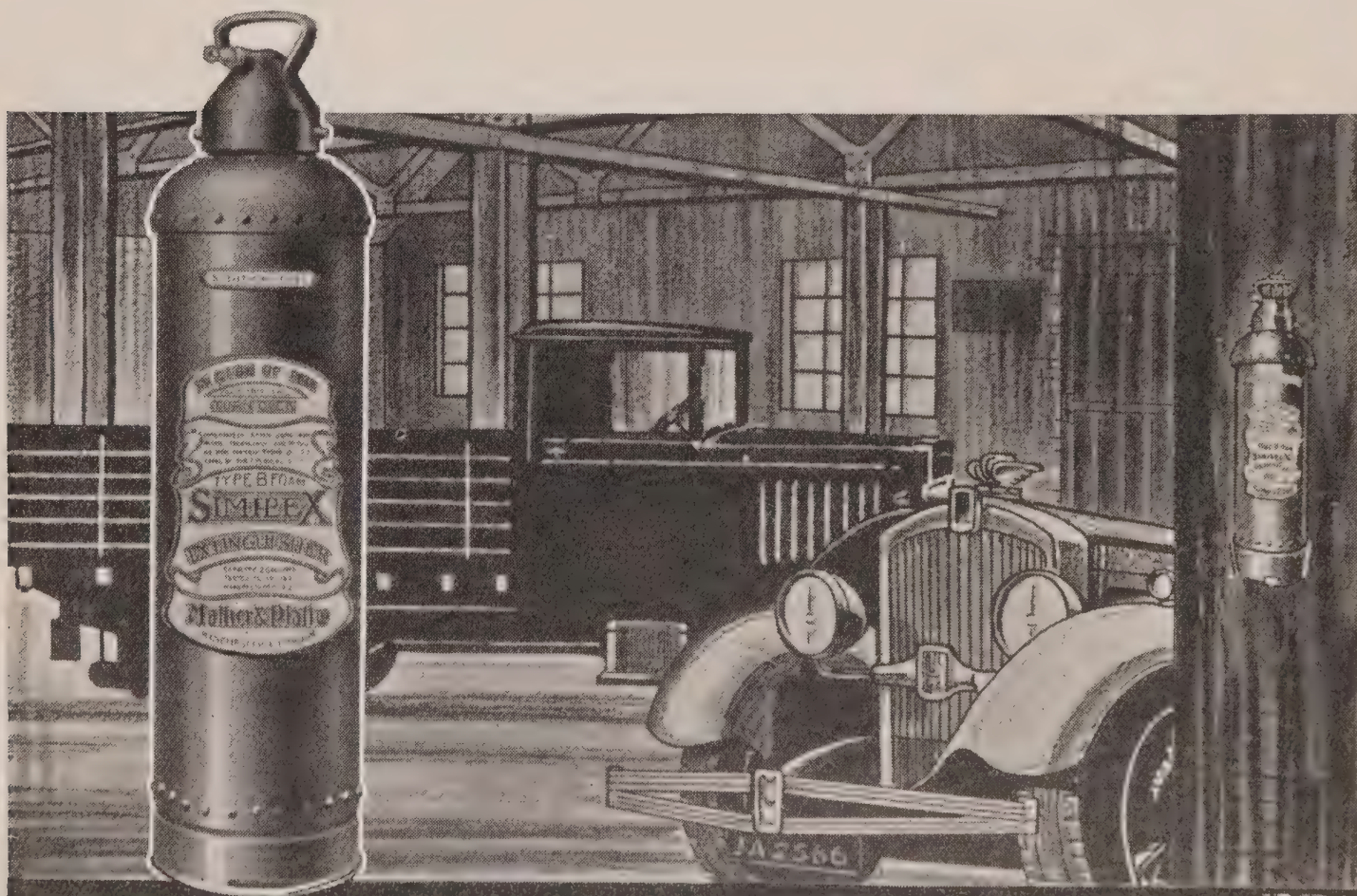
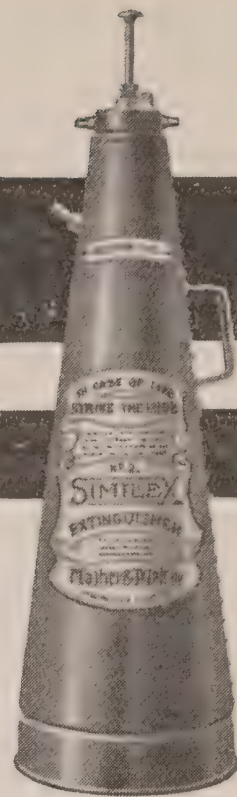
We have received copies of the Annual Reports of the Sheffield, Rotherham, and District Committee, the West Riding of Yorkshire Regional Committee, and the Manchester and District Regional Committee. It is hoped to consider these at greater length in the next issue.



# SIMPLEX EXTINGUISHERS

## SODA ACID and FOAM TYPE

“Simplex” Extinguishers, approved by all Insurance Companies, combine maximum efficiency with simplicity in operation and unfailing reliability with lowest cost. They are made in a wide range of colours to harmonise with any decorative scheme. A catalogue printed in natural colours will be sent on application.



**Mather & Platt Ltd**

• PARK WORKS, MANCHESTER, I.D. •  
PARK HOUSE, ST. SMITH ST. LONDON, S.W.1.

MP 1B6



# PRESS CUTTINGS

## SMOKE ABATEMENT AS OTHERS SEE IT

### Immense Mischief.

The more outrageous manifestations of the smoke evil, common in our larger towns 30 or 40 years ago, have been much abated. But the advance made ought not to blind us to the immense mischief still done in subtler and more cautious forms by the smoke nuisance. The Smoke Abatement Society, which meets once again at Bristol to-day, is doing very useful work, and deserves the encouragement and support of the suffering public.—*News Chronicle*.

### Suicidal.

It is all very well to "keep the home fires burning"—in song it sounds nice and comforting—but if it impairs the health of the people, as it unquestionably does, it is suicidal.—*Rotherham Advertiser*.

### "What Clean Cows !"

It is a truism of travel that, however sunlit the day, the approach to any great city takes over its brightness a dark and smoky film. Thousands of homely firesides and hundreds of factory chimneys pour out their murk into the air, and over the town's expanse there hangs a pall . . . . There is no need now for industry to turn a fair land into a blackened wilderness. Coal can be made a better, less grubby, servant of mankind.

There is a good deal of truth, as well as of pathos, in the story of the town child who on his first visit to the country went about crying delightedly : "What clean hills," "What a clean river," "What clean cows."—*Evening News, London*.

### The Inevitability of Gradualness.

Few reforms better exemplify the inevitability of gradualness than that of smoke abatement . . . . Great credit is due to the National Smoke Abatement Society for its efforts to make known the evils of pollution and to develop a strong public opinion on the point. Thanks to those endeavours the menace, not only of industrial, but of domestic smoke is far better understood to-day than it used to be.

Factories may belch their vapours into the blue, but it is the spangles of smoke from innumerable private chimney pots that are mainly responsible for poisoning the urban air. When these are eliminated, and not before, will our cities be fit for an Air population to breathe in.—*Western Daily Press*.

### The Supernal Sewer.

If we vaunt ourselves over our ancestors on the score of "enlightenment," it must be in a sense that is abstract, if not Pickwickian. We (of the cities) see through a

smoke darkly and breathe an air that they would have abhorred as heartily as their chivalry contemned "villainous saltpetre."

The mischievous effects of smoke have been for a generation familiar to every schoolboy, and every schoolboy as he grew to manhood has had to suffer them with little mitigation. The subject does not appear to reach the cognisance of those who rule us ; it would need a diligent search of "Hansard" to find anything about it. Yet it is a "national" question, if ever there was one : it has to be tackled on the broadest lines, if any headway it to be made at all . . . It makes one wonder how many of the hundreds of thousands of new houses that we are exhorting and organizing into existence will be fresh tributaries of that supernal sewer from which our nostrils have to extract the breath of life."—*The Observer*.

### Volunteers Required !

Let us again salute our untiring friends of the National Smoke Abatement Society.

To-day, in saluting Smoke Abatement, we proffer a small suggestion. Persuasion and statistics and talk about atmospheric pollution, sulphuric acid, flue dust and gas, malignant congestion and tar deposits having quite obviously proved useless, why not a band of devoted Smoke Abaters with blackened faces instead of black shirts—these to walk or stand about at selected points puffing smoke through portable funnels in a startling protest against smoke ?

Advertisement pays. Argument rarely convinces. Smoke abatement awaits its heroes and martyrs.—*Daily Mirror*.

### Disgusting Evil.

It was an old story, but one that needs reiteration, which was told at the Bristol Conference of the Smoke Abatement Society. The case against our present methods of burning raw coal had already been proved by irrefutable evidence ; but the speeches at the conference did succeed in making one or two new points and in keeping the whole disgusting evil before the public eye.—*Manchester Guardian Weekly*.

### Sanguine and Determined.

Since the burning of coal in London was prohibited exactly 662 years ago, and since from that day to this no one has paid the edict the smallest notice, the Smoke Abatement Society must be commended as a sanguine and determined body. Instead of denouncing the nuisance in bad language like John Evelyn, who pamphleteered against the "dismall and Hellish cloud of Sea-coal," the Society goes more cunningly to work by telling us of the shocking amount of money which is yearly wasted in smoke.—*The Morning Post*.



# BETTER, HOTTER AND CLEANER FIRES

Smoke abatement does not mean that open fires must be abolished. The use of the open fireplace in this country ensures well warmed and ventilated rooms at a cost much below that of any other system of heating.

**“COALITE”** is the best fuel obtainable for the open fireplace. It is a smokeless fuel made from the best British coal. Only clean washed coal is used so that the ash content is reduced to the lowest possible figure. In the manufacture of **“COALITE”** the soot and smoke producing constituents of the coal are eliminated, leaving a highly efficient radiant smokeless fuel.

**“COALITE”** gives the maximum useful heat with the minimum loss.

**“COALITE”** lights easily with paper and wood and quickly gives a clean, hot and cheerful fire in any type of open grate, kitchen range and closed stove. **“COALITE”** is the fuel for all purposes as it requires no special grate nor excessive draught or gas jets to assist lighting up or combustion.

**“COALITE”** is an economical fuel, though its price may appear somewhat higher than that of raw coal. An independent test for consumption and heat in an ordinary open fireplace carried out from November, 1931, to April, 1932, under normal practical conditions, showed that one ton of **“COALITE”** went as far as  $27\frac{1}{2}$  cwts. of best coal and gave equal heating.

A saving of 37% in the amount of fuel used was therefore effected and thus, in spite of its somewhat higher price per ton, **“COALITE”** is cheaper in use than ordinary coal and provides cleaner, better and brighter fires.

## **“COALITE”**

*(Regd. Trade Mark)*

*Supplies are obtainable from all leading Fuel Merchants. If any difficulty is experienced please communicate with the Company :*

**LOW TEMPERATURE CARBONISATION LTD.**  
28 GROSVENOR PLACE, LONDON, S.W.1

Telephone SLOANE 9274



# THE ATTACK UPON HEALTH

## A MEETING IN EDINBURGH

Lieut.-Col. John du F. Langrishe, of the Usher Institute of Public Health, University of Edinburgh, spoke of the effects of smoke upon health at a meeting of the Society of Chemical Industry at Edinburgh on October 8th. The speaker dealt with the direct damage to health caused by the pollution of the air, the indirect effects caused by the obstruction of solar radiation, and also the psychological effects. Further, and what is not always considered as it should be, Lieut.-Colonel Langrishe concluded his paper by showing how the effects of smoke upon vegetation and upon the quality of pasturage and therefore of milk, have consequences which are also prejudicial to human health.

The majority of the readers of this *Journal* will be familiar with the substance of the analysis of effects which are necessarily similar in any paper dealing with this subject. Nevertheless a number of Lieut.-Colonel Langrishe's observations are of especial interest and a number of extracts from his paper may be quoted as follows :

"Of all the elements that sustain life, air is the most important. In round figures, without food we die in three weeks, without water we die in three days, while without air we die in three minutes. Further, an average person inhales in 24 hours about 516 cu. ft. of air, weighing 38½ lbs. ; he also consumes in that time about 6 lbs. 13 ozs. of solid food and liquids : therefore he consumes five-and-a-half times by weight more air than food and water combined. Obviously, therefore, air is of far greater importance to man than either his food or his liquor. And yet, what do we find ? While meticulous care is bestowed on the control of the purity of food and water for our consumption, yet little control is exercised over the purity of this far more essential 'free air.'

It is at the extremes of life that the direct effects of smoke are most marked. The infant's tissues are exceedingly delicate—hence bronchitis and pneumonia are two of the most frequent causes of the deaths of infants in towns. This is reflected in the higher mortality of town infants from respiratory diseases, though, of course, it must be admitted that atmospheric pollution is not the sole cause. At the other extreme of life we find a higher death rate from this cause in town dwellers, and a higher death rate from heart diseases as well.

The constant irritation of the respiratory tract lowers its resistance to infections, whilst the gritty part of the ash in the smoky atmosphere causes definite injury, to which is partly attributable the increased incidence of lung tuberculosis, or phthisis, in town dwellers. There are also good grounds for believing that the tarry matter is at least partly responsible for cancer of the lung.

### The Obstruction of Sunlight.

The cutting-off of a large part of solar radiation from the human organism has profound effects upon it. One is struck on all sides by the pallor of town dwellers and their stunted stature, as compared with the rural population. They are pallid because of the lack of sufficient blood-forming and pigmenting solar rays. They are stunted because of the reduced vital ultra-violet radiations not being sufficient to produce adequate assimilation of calcium and phosphorus, and most pathetic of all is the existence of rickets in children, a disease due to incomplete formation of bone, brought about by the same cause. Owing to reduced powers of resistance, tuberculosis and the whole host of infectious diseases flourish where these beneficent rays are deficient. Is it any wonder, then, that such affections are rampant in our towns and cities ?

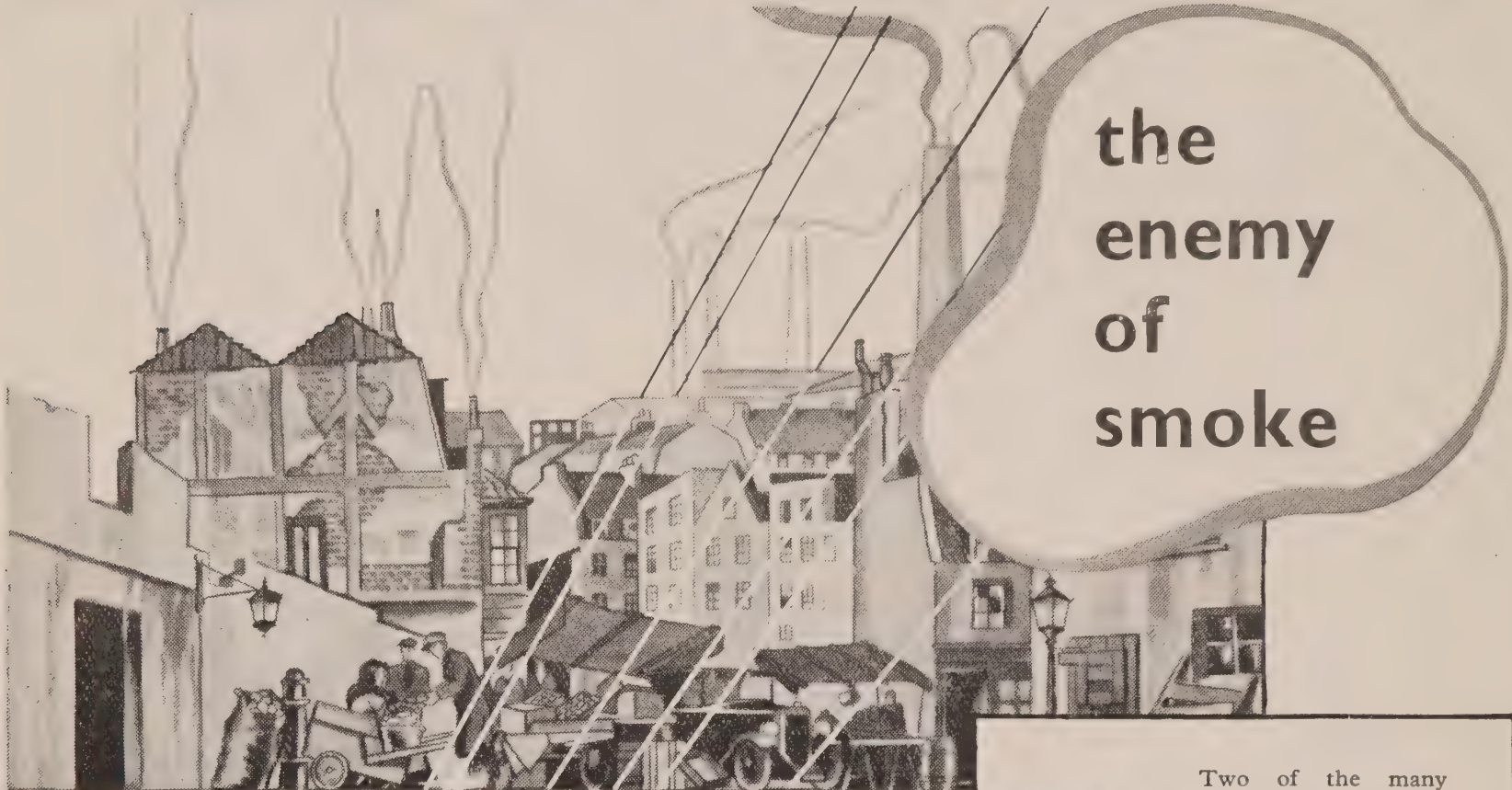
### Gloom Without and Gloom Within.

Psychological ill-effects are inter-related with the physiological : smoke-gloom lessens the potential reserve, working-power, and well-being of the individual : it increases fatigue, irritability and restlessness : gloom without makes for gloom within and induces mental depression.

After describing the effects of smoke upon plant life, Lieut.-Colonel Langrishe said : Then there is the effect on garden allotments. Lettuces, for instance, grown under such conditions in towns, give only 30% of their natural yield and are deficient in the essential qualities of calcium and vitamins. The same applies to all garden produce. It is not to be wondered at, therefore, that the allotment-holder throws in his hand in exasperation at the poor return for his toil. But, more important still, is the fact that he has to abandon healthy exercise, and that he and his family are then deprived of these highly valuable foodstuffs, with consequent detrimental effect on their health.



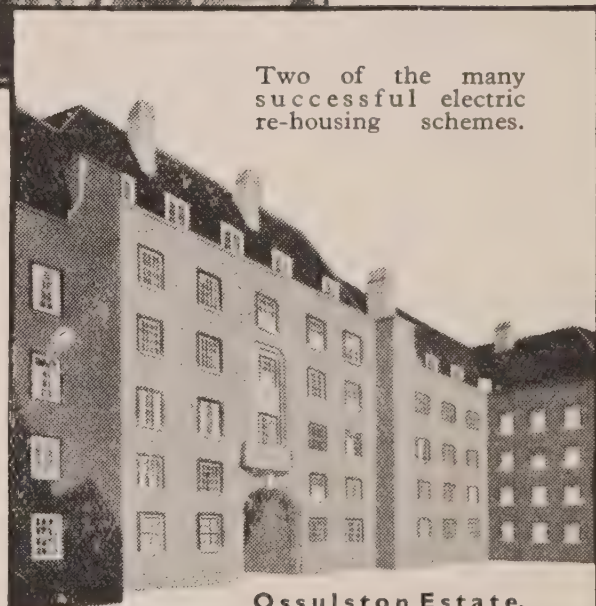
# ELECTRICITY



the  
enemy  
of  
smoke

Electricity is the most powerful ally of those engaged in the winning fight against the evil of smoke pollution. Electricity is the perfect, smokeless, pure source of light, heat and power. Local authorities everywhere are finding that the all-electric re-housing scheme is the most truly economical. Magnificent blocks of all-electric flats, cheerful all-electric houses, are revolutionising the living conditions of the million. The output of current has increased by over 155 per cent. in the last ten years. Users of electricity now number over six million. Current is available throughout three-quarters of the country at about three-farthings a unit. The time is near, very near, when electricity will have brought the blessings of pure air and sunlight to *everyone* in the land.

Two of the many  
successful electric  
re-housing schemes.



**Ossulston Estate,  
Somers Town.**  
Tenants are delighted  
with the economical  
electric equipment.



**Preston Corporation  
Housing Scheme.**  
Houses vary in size,  
rents ranging from  
6'4 to 10'6 weekly.

Architects, Members of Housing Committees, Engineers of Municipal Authorities and others will be interested in "Electricity and Re-housing" giving detailed particulars of above and other housing schemes. Free on request. Enquiries should be addressed to The Director and Secretary,  
**ELECTRICAL DEVELOPMENT ASSOCIATION, INC.**  
2 Savoy Hill, London, W.C.2.

Telephone is Temple Bar 9434



# BRISTOL

## IMPRESSIONS OF THE CONFERENCE

Political parties, trade unions, and most of the multitude of associations that meet in conference each year, are fortunate in having committees that elect to visit pleasant resorts by the sea. The National Smoke Abatement Society's Committee appears to be made of sterner stuff, and year after year demands that we shall go to places where our presence is required and where our words may fall on fruitful soil. This year though, by design or by chance, a compromise was reached, and an invitation to meet in Bristol was accepted.

A compromise perhaps because Bristol, even though it is a busy port, is not on the sea, and does not possess either pier, promenade, or pierrots. But hardly a compromise in charm and interest. A pleasant change from meeting in those dark and dour northern cities, and certainly no smokier than any of our sooty seaside towns.

The cleanliness of the city was often commented upon, but in fairness to the cause of smoke abatement (if not in courtesy to our hosts) we saw it during clear, fresh weather, just after a gale that left all England with a nice new atmosphere. On still foggy days in November one can perhaps imagine even Bristol, with its hundred thousand smoke-creating families, looking rather different.

In some of the smokiest and dirtiest towns in the country the people are so deeply inured to their condition that, except for an enlightened minority, their imaginations cannot grasp the possibilities of cleanliness. Bristol, however, is clean enough to understand the benefits that will be attained and enjoyed when there is greater cleanliness and absence of smoke.

That, perhaps, is one reason why we were welcomed so delightfully. The gracious and—if one may say so—comfortable reception by the Lord Mayor and Lady Mayoress at the Mansion House, the courtesy of the Public Assistance Committee in giving us the use of the Board Room in that wonderful old building, St. Peter's Hospital, the kindness of the Bristol Water Company in inviting us to the Cheddar Gorge and to tea, and every Bristolian who had anything to do with the arrangements—all made us appreciate the worth of West-country hospitality.

### A Weakness in Discussion.

The papers read were notable for their information and interest, and on the whole the discussions were good. But, as usual, not always to the point. It was a pity, for instance, that so much of the discussion on Friday afternoon should have been devoted to the relative merits of different types of smokeless agent and

so little to the specific subject of the session—the present use of smokeless equipment in housing estates. It would, perhaps, have been useful for any other organization to discuss smoke abatement in such general terms, but the meetings of the Society by now should be able to accept the general problem and pass on to the particular and more technical details that have to be considered. The discussion was good for amateurs but not good enough for a Society that has been considering the problem for over thirty years. The writer is informed that conference meetings in the future may be organized differently in order to promote more constructive discussions in place of the largely non-productive talk that has been so much in evidence. It is to be hoped that some new method may be devised.

As the papers and discussions are printed in full in the *Conference Proceedings* it is hardly necessary to review them in these notes. It need only be said that this volume should be one of the most useful ever published. The ground is covered so completely by the seven papers that it could almost be taken as a text-book—there is Dr. Des Voeux's fascinating address, with its probes into the heart of the matter and its sharp jabs at the sentiment and ignorance that hinders progress, Dr. Lessing's erudite and well-balanced analysis of the sources of pollution, Dr. Ruston's review of the many, and generally too little realized, effects of smoke on the countryside and all natural growth, Mr. Dibblin's survey of one of the most urgent of modern industrial problems, and the three papers by Messrs. Francis, Jennings, and Beaumont, dealing with the practical means for the solution of the domestic problem. With all the information given, and with the remedies indicated, the *Proceedings* should demonstrate to even the most thick-headed of "nice coal fire" cranks the gravity of the evil and the weapons for overcoming it.

### Cheddar.

Turning to the lighter side, it is pleasant to record the visit to the Cheddar Gorge on the Saturday afternoon, when, released from its deliberations, the Conference was allowed to enjoy itself. The Water Company has no obvious interest in smoke abatement and can have had no motive other than that of generous hospitality in enabling us to see the Gorge and the famous caves. The grandeur of the sheer rugged cliffs set so strangely in the heart of the soft and ancient Mendips even exceeded the expectations of one who was making his first visit, and the cave which the party visited made another memorable experience. The strange, grotesque formations of stone, the still pools in which the fantastic roof was mirrored, the cunningly placed lights that



# The **EAGLE**

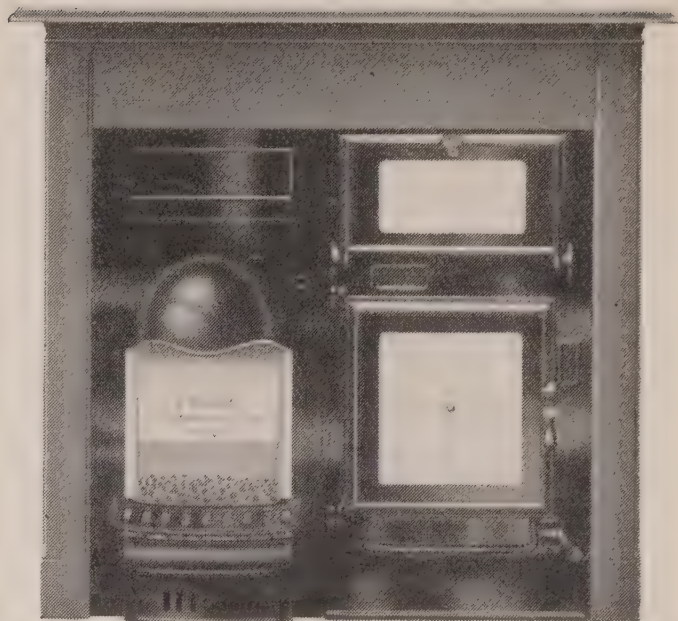
## COKE BURNING COMBINATION GRATE

THE 'EAGLE' L.C.21 COKE-BURNING COMBINATION GRATE ensures perfect cooking, abundant hot water and a bright open fire, at a very low fuel cost.

Coke as a domestic fuel has many advantages—no smoke, no soot, economical and clean in use, easily lit by means of the gas burner without the use of paper and firewood.

Further particulars from :

The **EAGLE RANGE & GRATE Co. Ltd.**  
CATHERINE STREET  
ASTON, BIRMINGHAM, 6



## HOW MANY LBS. OF WATER DO YOUR BOILERS EVAPORATE PER DAY?

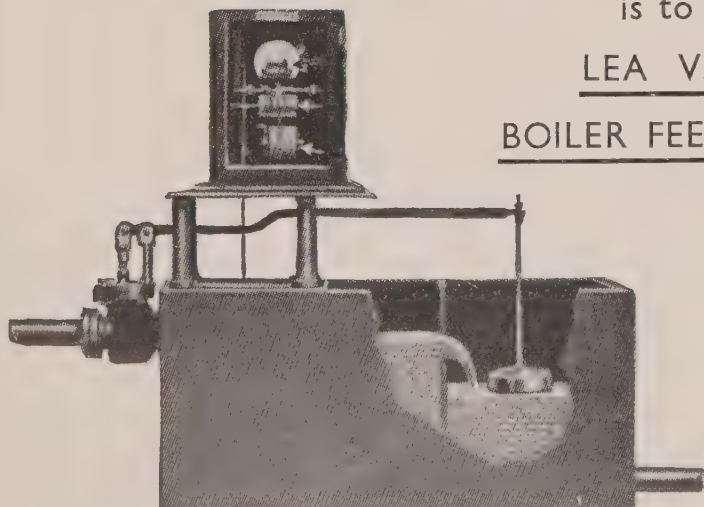
One of the best ways of answering the above question  
and also of determining the Vital Figure :—

**“POUNDS OF WATER per POUND OF COAL”**

is to install a

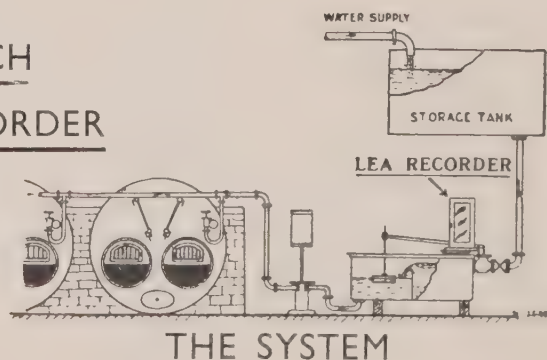
LEA V. NOTCH

BOILER FEED RECORDER



Lea "Trafford" Type Recorder for small boiler plants  
Capacity—20,000 lbs. per hour.

(Quick delivery from stock)



**THE LEA RECORDER CO LTD.**  
**CORNBROOK, MANCHESTER, 15**

London Office: Parliament Mansions  
Victoria Street, S.W.1 Tel. Abbey 4079



revealed and dramatized every outstanding feature, and perhaps most surprising of all, the unexpected intensity and range of colours, were the wonders of an exotic underworld that it was hard to believe was of nature and not of an exuberant imagination.

Outside in the Gorge, though, there was too much that was neither of nature nor of the imagination. The handiwork of man all around was deplorable: commercialism at its worst and decency in planning at its least.

Of the pleasures sought by delegates on the Saturday night little is known. One fact can be recorded (for what it may be worth)—the queue outside the Hippodrome, where Messrs. Wall and Lynn were to be seen, probably contained more expert knowledge on smoke abatement than any cinema queue before.

### Sunday Morning.

Sunday was an interesting morning. There was first the visit to the new and superb showrooms of the Bristol Gas Company. A magnificent modern building, and ideal display of every kind of gas appliance, and a most friendly and helpful group of officials who had given up their Sunday morning for our sakes. The showrooms were a revelation of what gas showrooms can be, and so, as a matter of fact, were the refreshments. A probably unintended feature of the proceedings was the lift that stuck, full of members, right in front of a door that refused to open. As the door had a small glass panel and the rest of the party was passing outside, the tightly jammed victims were viewed by a succession of highly amused faces that looked, grin after grin, through the door.

On leaving the showrooms, expressing real gratitude to Mr. Halliwell and his staff, we were taken by cars to the outskirts of the city, where a house of considerable significance is being completed. It was the All-Electric House, erected by the Electrical Association for Women and largely the concern of the Bristol Branch of the Association and of its Chairman, Mrs. A. J. Newman, who was our hostess and guide that morning.

It was perhaps a pity that the house was not quite completed and that it had not the many fittings with which it is to demonstrate the domestic uses of electricity, but nevertheless we were able to see the planning and to appreciate what was going to be done. Modern in design as well as in equipment, the house is a valuable and highly effective means for education, and credit must be given to the E.A.W. for its enterprise. The thought came that the Society might do something similar with a Smokeless House, but then came the realization that to give a fair show to all smokeless methods a whole housing estate would be required.

And so, among the most modern gas appliances and brightly-burning open fires, and in a house where electricity was to be the means of preventing the fouling of the atmosphere, the Conference ended, with all acutely conscious that they had seen the practical fulfilment of what they had been pleading and hoping for. One came away from Bristol feeling that even though it is a slow job, the eventual abolition of the smoke evil is as certain as anything can be in such a world of strife and striving.

ONLOOKER.

---

### The E. A. W. House.

The All-Electric House erected in Bristol by the Electrical Association for Women is mentioned in the article on the Annual Conference. It was officially opened on October 25th, and remains open for inspection until November 22nd. The E.A.W. has issued a booklet describing the house in full, and copies may be obtained from their offices at 20, Regent Street, S.W.1.

The house has been designed for people of moderate income and the cost has been limited to £1,000. Of the chief aims of the enterprise, listed in the booklet, two are of especial interest—"To encourage architects to specify, and builders to include, as much electrical equipment as possible in the price of the house," and "to observe how far manufacturers could supply materials and equipment asked for by women at reasonable prices."

The house is modern in style, with a flat roof (containing a sheltered part for sun-bathing), has four

bedrooms, a long entertaining room which can be divided by curtains into a living room and a dining room, built-in garage, and many constructional features, which apart from the electrical equipment, are worthy of note. Details which are more common in large houses have been incorporated with success in this house and include such things as built-in cupboards and wardrobes, space for dustbin under cover, absence of moulding, rounded corners, flush doors, service hatch in the back door so that tradesmen can be answered without opening the door, built-in kitchen fittings, and many other practical matters.

The electrical equipment is, needless to say, fully comprehensive, and ranges from inset and directional fires (nine in all), built-in refrigerator, and clocks, to floor polisher, hair dryer, bed warmer, and coffee percolator. Altogether it is a fascinating display of domestic appliances, and it gains infinitely in appeal because they are seen in their right places in a home and not in the rather austere atmosphere of a showroom.





... the difference ...

## GLOVER-WEST VERTICAL RETORTS

**T**HE smoke evil shrinks as gas consumption grows and methods of gas usage develop. **At the point of manufacture the smoke evil need not exist.** The gas works pictured on the right is equipped with Glover-West vertical retorts. Gas production is proceeding normally. There are no outward signs because carbonizing here is a totally-enclosed process. Like 260 others throughout the world, this undertaking enhances its claim to be the community's principal weapon against atmospheric pollution.

*for a smoke-free Gas Works ...*

## West's Carbonizing Systems

WEST'S GAS IMPROVEMENT CO., LTD.

MILES PLATTING MANCHESTER, 10



# SMOKE ABATEMENT FROM A MANAGER'S VIEWPOINT

*An Address given by W. H. Nield to the West Riding of Yorkshire Regional Smoke Abatement Committee.*

I have been asked to speak this afternoon on Smoke Abatement from a Manager's point of view, with special reference to the training of boiler firemen through the medium of classes, and to give my views on the subject. I put my view on the matter before the Departmental Committee years ago, which was that I did not think that a fireman who had been working hard all day should be expected to, or would be easily interested in, attending school at night. I thought that this was the wrong way of dealing with the subject. I am here to-day to enlarge upon that subject.

For over 30 years I have had charge of a boiler plant and for four years in that period I acted as Inspector for the Smoke Abatement League, so I can claim to have visited hundreds of plants not only around Manchester, but in London, Warrington, Stockport, Oldham and other cotton towns. I have not therefore arrived on the scene through the medium of a theoretical existence. I eventually arrived at a stage which led up to my making a stoker which subsequently proved that the present methods can only be partially successful. These methods, however, can be developed so that they will better fulfil their place than at present obtains.

I have found that there is a tendency to think that if you give a fireman a theoretical education on boiler-house practice, the smoke problem would be solved. I differ from that view because, as so often happens, between practice and theory there is apt to be a great gulf. There are so many factors entering into and constantly changing that the theory taught, if put into practice, would upset the running of a plant. The making of steam on an efficient and economical basis requires as much care as many of the trades in which the boiler is supposed to be only an auxiliary.

There are always two strong factors running contrary to the demand for the abatement of smoke—of course they are wrong—namely, that it is expensive and the ease of the fireman. I want to be able to show both the master and his fireman that they are wrong.

## Text-Books Not Enough.

I also know that much money has been spent in providing the necessary appliances to keep a clean chimney and to save fuel, but the fact remains that though we are here to try to mitigate the nuisance, the means have not been altogether successful. You cannot lay down in text books a rule that will fit every plant every day, and every hour of the day. Each plant must be dealt with on its merits, and each must be studied on its peculiarities, and there are many. The correct burning of coal is not yet fully understood,

and when it is, there will be a still further saving of fuel over the best practices of to-day, to the financial benefit of the users and to the public. I take it that the Regional Committees and the Smoke Abatement Society desire to be helpful to trade, and that whilst trying to get a smoke free atmosphere they are not attempting the same at the expense of the owner of a plant.

Of course, anyone and everyone knows that smoke is unclean and must see its effects upon the atmosphere, but very few realize the damage done and the loss it entails to the public and to the user.

As a fuel, coal is cheap and compares favourably with other types of heat producers, so that to limit its use can only be justified because of its objectionable products of combustion, but seeing that these objectionable features can be eliminated, it is for us to act on right lines by tackling the subject in a skilful and logical manner.

## Associations of Steam-Users.

Where I differ from the advocates whose idea is to train boiler attendants by classes, is in the fact that you are playing on one string only, and that one not the most important. Therefore, my advice is that it must be made possible for each owner of a plant to have at his call the best practical brains at a nominal cost. To this end I suggest that the steam-users in a district should form themselves into an association, each one paying, say, £10 per boiler per annum, with a reduction for each additional boiler. The association should engage a practical and competent combustion engineer, whose duties would be to pay periodical visits to the plant of each subscriber and examine the boiler plant in its entirety, as follows:—

1. Make evaporative tests.
2. Work out efficiency figures.
3. Examine and advise on types of furnaces, whether mechanical stokers, firebars, or other appliances.
4. Examine economisers in conjunction with the working of the boiler.
5. Give demonstrations of firing, either hand or machine.
6. Show by example the best way of meeting sudden demands of steam. (This is a very fruitful source of black smoke).
7. Generally to assist in getting the best possible results for the works.
8. To give advice on the suitability of coals and the testing of them.





## GAS RESEARCH AND INDUSTRY

THERE ARE OVER 3,000  
TRADES USING GAS

WHAT ARE  
YOUR REQUIREMENTS?

### — — GAS IS INDISPENSABLE IN INDUSTRY — —

The experience of the Gas Industry and Results of Experimental Tests and Laboratory Research are placed at the disposal of persons or firms interested.

The Gas Undertaking will help you by providing facilities for Furnace Demonstrations, &c., for the purpose of carrying out secret tests and experiments.

Local Demonstration Room :

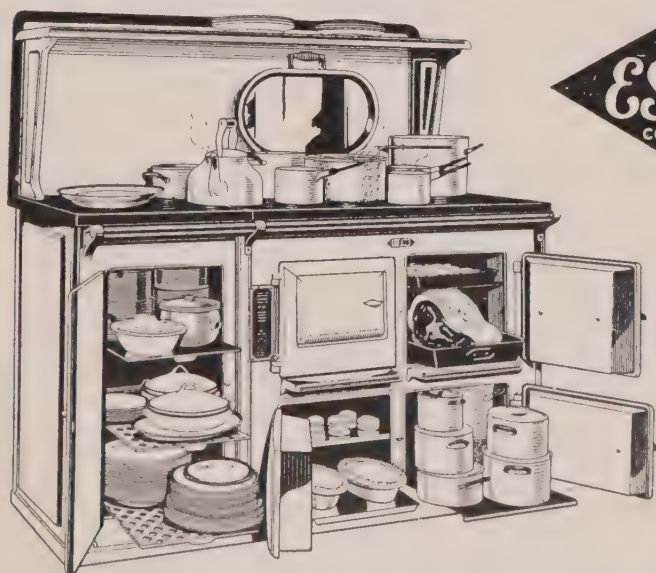
**15 WHITWORTH STREET WEST - - MANCHESTER**

Inquiries : J. H. SILLITOE, Commercial Manager and Secretary.

**CITY of MANCHESTER GAS DEPARTMENT**  
**TOWN HALL, MANCHESTER**

Telephone : CENTral 3377

## Anthracite is Smokeless and gives maximum economy with these Appliances



This wonderful cooker saves in fuel costs enough to pay for itself in about three years. Clean, labour-saving, fume-free. No daily lighting.

Continuous Heating for 3d. a day. Ensure steady safe heat throughout the house. No fumes or dirt.



**ESSE**  
PATENT STOVES

*British Patent Nos. 370680; 390119; 390674; 390749; 394177; and Licensed under British Patents Nos. 205071 and 332444.*

**SMITH & WELLSTOOD LTD.,** Bonnybridge, Scotland  
Showrooms at 11, Ludgate Circus, LONDON E.C. 4. and at LIVERPOOL, EDINBURGH and GLASGOW



There would be many avenues open, on similar lines, which would enable the staff and himself to explore and develop.

A person of the necessary ability and experience would be better able to speak on suggested improvements that might be wanted, and acting between the boiler house and the office would be an intermediary with reputed credentials. It would also be necessary for him to keep in touch with the latest practices, which would be passed on as he visited each plant.

I have personally often been in difficulty of mind in deciding on the merits of some invention which has been offered to me for application to the mill, but the testing of which would involve expense and alteration to present conditions, so that in a case like this a steam-user could apply to the association's engineer for advice. I know there must be many things of this character that could be dealt with and so save a steam-user much time and thought.

After these steps had been taken it would then be open for this engineer to start classes for the theoretical training of the men whom he had visited at the respective works, where the theory matters could be dealt with, and also the many difficulties met in his works visits could be explained to all members. I can quite see that there could grow up quite a bond of friendship betwixt the various staffs, and that the duty of an examining engineer would not be looked upon by the workmen as an interference, but as a blessing in their labours which would be lightened thereby.

The results to be obtained would be quite out of all proportion to the costs and eventually efficiency and smokelessness would go hand in hand.

The foregoing recommendations are, I believe, to be sound and feasible, and financially within the reach of all. They only require the same energy and wisdom as is needed in the present organization, and would, I feel sure, do more to get at the trouble and remove it than what has been done.

### Economies Made Possible.

An association of this sort, embracing many concerns, could, if so desired, and if when their engineer recommended anything new, no doubt purchase in bulk quantity, and so further assist in economies not otherwise open.

There are times when a steam-user gets into conflict with the Local Health Authorities regarding smoke, and I feel sure that the fact of his being a member of this body would show to the Authorities his desire to meet their requirements.

I believe that in the generation of steam there is too little interchange of ideas between steam users, or

pooling of ideas, which without giving away anything of a private character, could be of great benefit if passed on to each other.

The work done by the proposed engineer would be kept private as regards each individual works, but a common basis of working would be adopted.

If we turn to the psychological side of the present system of working we find that the firebeater is subject to the engineer, which is quite proper, yet the result of the firebeater increasing his knowledge could lead him to be a better exponent of the right methods to be adopted in firing than his chief. I know of cases where this has led to trouble and the eventual discharge of the fireman. Under the proposed scheme the expert would be the medium by which the improvements would be put forward, and could thereby be carried out without prejudice to the dignity of one man or another.

Superheated steam is still a doubtful proposition with some engineers, when in reality there should be no doubt as regards its economy and its usefulness. Similarly, there are doubts in boiler firing.

We live in an age where we must get every ounce out of anything and everything, and questions like the foregoing should not be dependent upon the attitude of mind of even a good mechanical engineer, who possibly has not kept pace with the developments of up-to-date practice.

The evaporation of water into steam at the lowest cost is, and should be, a live question with all of us, and smoke abatement is wrapped up with both.

When amalgamation of businesses take place is it not a common thing for them to appoint a chief engineer who deals with the question in the same way as I have suggested? They find it necessary to economize, and they do it. Why should not independent firms run their plants with the best brains possible.

### The Value of the Expert.

Working under conditions which I have enumerated, would it not be a boon to any mill owner or steam plant owner to have at his call an expert of the type that I have mentioned, and would it not be a boon to anyone to know the efficiency of his plant instead of going on the surmise that they are doing their best?

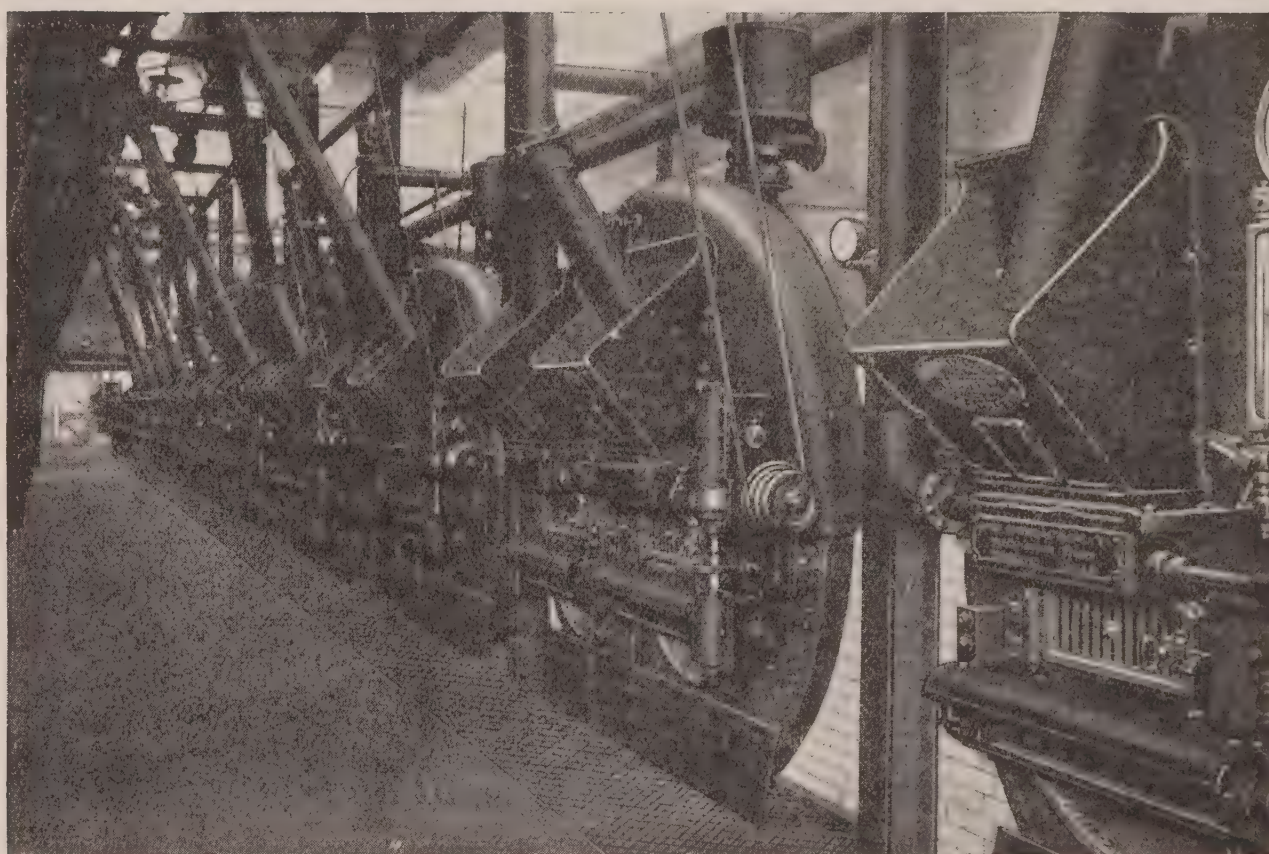
The smoke abatement bodies would also have the satisfaction of knowing the degree of co-operation which existed amongst all concerned.

I sincerely hope that the steam-users will awake to the fact that they are in many cases paying 20, 30, or even more per cent. for coal than the best conditions would give to them, and when that is spoken of in terms of hundreds and perhaps thousands of pounds per year, they will, I hope, see the value of any effort which has for its object the saving of this money through the payment of such a small yearly subscription.



# **HODGKINSON'S** **PATENT** **AUTOMATIC STOKERS**

ARE GUARANTEED  
SMOKELESS and GRITLESS  
AND TO GIVE HIGHEST ECONOMY AND EFFICIENCY



PART OF AN INSTALLATION OF 30 BOILERS AT A WELL KNOWN PAPER MILL

JAMES HODGKINSON (SALFORD) LTD.,  
FORD LANE WORKS,  
PENDLETON - SALFORD 6 - LANCs.

Telephones : 1491-2-3 Pendleton.

Telegrams : "Incendo, Manchester."



I have now given you the basis of my ideas on how best to train stokers in smoke abatement, which is much broader in its outlook, and would be in the application, than might at first sight seem likely ; but I venture to suggest that, given a sympathetic reception and an examination of what it stands for, it cannot fail to meet most of the needs for which you are working.

As I have pointed out, the difficulties are at the works, and I know from experience that to try to visualize them in a classroom through the medium either of text books or by verbal illustrations is not the way either to get at the facts and to thoroughly comprehend them, nor yet to cure them.



*The Society's Stand at the recent Health Week Exhibition at York, which was visited by 14,000 people. It was not an alias, but a stand-fitters error that was responsible for "Council" instead of "Society."*

### Smoke and Photography.

The photographic papers have very kindly given publicity to the competition and exhibition of smoke abatement photographs that the Society is organizing. We appreciate particularly the editorial commendation given by the *Camera* and the *British Journal of Photography*. The latter may be quoted as it indicates how smoke seriously affects an important industry. "Photographers," says the editorial, "even more than many other sections of the community, will welcome the efforts which are being made by the National Smoke Abatement Society to lessen or remove the

evils arising from the pollution of the air by smoke. Photographers in large manufacturing towns realise to their cost the difficulties of all outdoor work, the black, dull, buildings, and the smoky atmosphere. The atmosphere penetrates the studios, and though electric lighting overcomes that difficulty to a large extent, there still remains the depressing effects of the smoke-laden air and the general impaired efficiency resulting. . . . All photographers should be willing to aid the Society in its laudable efforts to purify the air in our manufacturing districts and save natural and architectural beauty from destruction."



# The NATIONAL COKE & OIL CO. LTD.

Telephone { TIPTON 1832  
MANSION HOUSE 2069, 2107 } for a

## WAGON, A TON OR A CWT.

# N A C O

(NATIONAL COAL)

### SMOKELESS FUEL

Produced only by the  
**NATIONAL COKE & OIL Company Limited**  
PRINCES END, TIPTON, STAFFS.

**20%** *more Radiant Heat than raw coal*

## CLEANER TO USE

If supplies are difficult to obtain communicate  
with the Head Office of the Company :—

**82 KING WILLIAM ST., LONDON, E.C.4**

or the Local Office :— **PRINCES END, TIPTON, STAFFS.**



# PUBLICATIONS RECEIVED

## The Work of the Sanitary Engineer.

Major A. J. Martin, the writer of the trenchant dialogue which appears on another page, is an old and valued member of the Society's Council. He is a well-known Civil Engineer and is Past President of the Institution of Sanitary Engineers and of the Association of Managers of Sewage Disposal Works, and is the author of a number of books. One just published will be of direct interest to the many municipal officers who are readers of this *Journal*. It is "The Work of the Sanitary Engineer" and is published by Macdonald and Evans, London, at 16/- net. (Demy 8vo. pp. 488, 81 illustrations).

As this work does not deal with smoke and its abatement it is difficult to review it at any length in these pages, but even to a lay reader it is a text-book of the highest order and of comprehensive detail. The sections indicate the scope of the work: Sanitary Administration, Water Supply, Drainage and Sewerage, Sewage Disposal, Collection and Disposal of Refuse, and Flood Prevention, Land Drainage and Coast Protection.

The question of refuse collection in one respect touches the question of atmospheric pollution, and this section was examined with interest to see if Major Martin had dealt with the controversial problem of the burning of household refuse. "Burn More Refuse and Reduce the Rates" is a frequently seen slogan, but is it advantageous to urge the public to do this when, owing to the crude methods by which it will be done, it will add to the objectionable impurities in the atmosphere? Unfortunately this aspect of refuse disposal is not mentioned, for one would have been glad to have had Major Martin's expert views.

## Water Heating by Gas.

A sumptuously produced and profusely illustrated book on the uses of gas for domestic water heating is published by Ascot Gas Water Heaters Ltd., of 244, High Holborn. Ascot gas water heaters are well-known and are manufactured in a wide range. Part of the company's very attractive book consists of photographs—many of them beautiful examples of colour printing—showing installations of every kind actually as they are in use. This is advertising in a way very pleasing and instructive to the reader, but the book contains information of a wider and more educative type which takes it out of the purely advertising level and places it in that of the text-book. For this reason it must be of considerable practical value to all who are concerned with housing, and especially to architects and builders.

The question of hot water heating is as equally important as that of room warming, and the smokeless home cannot be achieved unless both these factors, as well as that of cooking, are satisfactorily solved. The

study of the articles in this book on the evolution of the process of obtaining hot water, and on the fundamental principles of water heating for domestic use, followed by very informative articles on water heating, existing and future, in both flats and houses, will indicate how satisfactorily the problem can be solved. They also indicate how thoroughly the whole question has been examined by the Ascot company, who deserve credit, not only for their products, but also for their excellent and attractive means of drawing attention to them.

## Chimneys Without Smoke.

This is the title of one of the latest issues of the "Thousand and One Uses for Gas" series issued by the British Commercial Gas Association. It contains a number of excellent smoke abatement photographs and a brief account of the effects of smoke. The way in which gas is being used in flats and housing schemes is described and the methods of making the best use of gas in the home are outlined. This is valuable publicity, not only for gas but for smoke abatement.

## Smoke in Bengal.

The 29th Annual Report of the Bengal Smoke Nuisances Commission is as interesting and informative as before. It is not only interesting to us in England, where we are perhaps inclined to look upon smoke as our own particular evil, because it comes from a tropical country which we do not commonly associate with smoke, but it is interesting in itself as the Report of one of the most successful examples of the progress can, steadily and continuously, be made by an organization specially formed to deal with smoke nuisances. That the Bengal Commission is highly successful is shown by the fact that when it started in 1906 there was an average of observed emissions of 13.1 minutes of the equivalent of dense black smoke. In 1934 this has been reduced to 0.07 minutes.

The Report contains practical hints to owners and engineers, and describes the persuasive steps that are being taken by publicity, exhibitions, etc., to reduce the domestic nuisance and draw public attention to the evil.

Electricity, gas, and smokeless fuels are being increasingly used and are, as in this country, helping to solve the domestic and general problem. In 1934 there were 4,695 new domestic consumers of electricity and an increase of 28,600 h.p. in the electric power supplied to industry.

During the year action was taken in respect to 1,216 offences, and it is interesting to note that 980 telephone warnings were made, presumably while the emission was in progress. 4,575 inspections and tests were made, seven statutory warnings served, and 12 prosecutions taken. Fines ranged from 1 to 125 rupees.



---

---

# **Install a COKE Boiler for Comfort *with* economy**

A Coke Boiler helps to bring the "labour-saving" Home within the reach of the slender purse.

For a few pence a day, just the price of a scuttleful of Coke, you can have constant hot water in Bathroom, Bedrooms and Kitchen, *plus* a radiator or two to keep Hall and Dining Room warm and the whole house damp-free.

Get in touch with your Gas Company; they will give you free, helpful advice on the choice of a suitable boiler and will carry out the installation if you wish (the cost can be paid by instalments) . . . or write for a free illustrated Brochure to:—

**THE LONDON & COUNTIES  
COKE ASSOCIATION,  
9 GROSVENOR GARDENS, LONDON, S.W.1**

(L.28)





# NEWS AND VIEWS

## Northumberland and Durham Committee.

This Regional Committee visited Sunderland on September 24th, and under the guidance of Dr. R. Stuart Hebblethwaite, the Medical Officer of Health, paid a series of visits to industrial plants in the town to inspect smoke preventing appliances in operation. At a meeting held prior to the visits it was announced that the subscription from constituent authorities would be reduced from two to one guinea per annum.

Dr. Hebblethwaite also addressed a meeting of industrial representatives at the Town Hall on October 15th, in connection with Health Week. He said that there was a definite connection between smoke and injury to health, and that smoke was the result of imperfect combustion. Smoke abatement had a definite claim to consideration by industrialists on the grounds of economy, because smoke abatement devices were economizers. Speaking generally, the carbon which comes out with the smoke was a dead loss. Boiler owners should know that boiler efficiency was consistent with a clean chimney top.

## Manchester and Salford Trades Council.

A Memorandum on smoke abatement has recently been issued by the Council and deserves note both for its recommendations and for the reason that, as far as is known, it is the first time that such an organization has considered and has so definitely stated its views on the subject. The memorandum states that "dirt and disfigurement, resulting from old methods of industry and the unrestricted use of raw fuel, have damaged the attractiveness of these areas for the newer industries, which tend to go where the greatest amenities for those employed are to be found. Further, it is now accepted that a large proportion of the workers must be housed near to their work and it is, therefore, essential to lose no time in improving the atmosphere and amenities of central areas. It is both unnecessary and intolerable that such workers and their families should continue to be deprived of their natural birth-right of pure air and clean, healthy surroundings."

Three recommendations are made, as follows. The second, bearing upon the question from a different aspect, should be especially noted:—

(i) That City Councils should be urged to obtain powers enabling them to make regulations prohibiting the burning of raw coal in specified areas. Such a regulation should, e.g., apply to the central areas mainly occupied by offices and business premises, where the coal fire is an anachronism.

(ii) That the periodical cleaning of the exterior of all buildings in city areas should be made compulsory. Such a regulation is in fact in force in several cities abroad, and its enforcement is extremely popular

generally, and particularly with the various trades which are assisted. The cleaning is very thorough and involves steam brushing or scraping of stone, rubbing and pointing of brickwork, painting, etc.; in fact the whole buildings are made to look new. The Manchester and Salford Trades Council is satisfied that the improved appearance of city areas obtainable by such a regulation, and the purchasing power resulting from the additional employment, would have a favourable reaction on commerce. It is also obvious that such a regulation would tend to discourage the production of smoke.

(iii) That the City Councils should also be urged to take immediate action with the object of reducing domestic smoke emission generally. For this purpose it is suggested that steps should be taken to ensure that open fireplaces in all houses under municipal control shall be of a type that will satisfactorily burn gasworks domestic coke or other smokeless fuels, and that regular supplies of such fuels shall be delivered to tenants.

## Huddersfield "Cobs."

We have received the syllabus of the new session of classes in smoke abatement and fuel economy organized by the Huddersfield Smoke Abatement Council. The "Cobs" refers to the slogan used: "Cut out Black Smoke" which means "Clearer Outlook Brighter Sunshine" and "Cobs" saved. No less than five different courses are held, including one on electrical engineering practice and one in preparation for the City and Guilds of London Institute's Examinations. The session was opened by a meeting at which Mr. Edgar Lunn, who has worked hard and successfully for this Huddersfield movement, gave an outspoken address on the need for and the benefits of smoke prevention in industry.

## A New Sheffield Society.

A further course of lectures for furnacemen, boiler firemen, and stokers, is being organized by the Department of Applied Science, University of Sheffield, and what is particularly interesting, a Sheffield Furnacemen and Stokers' Technical Society has been formed in connection with the Sheffield Trades Technical Societies. This last organization is, to judge from its handbook, a most important body, which co-ordinates, in association with the University, thirteen trade societies. These have their own specialist meetings, and there are further meetings of general interest. It is a sign of the times that Furnacemen and Stokers should now have their own organization, the members of which are largely drawn from those who have passed through the training courses. We hope that the newcomer will be successful in all it does and will exert an increasing influence in Sheffield's attempt to rid itself of smoke.



### The Manchester, Salford, and District Branch.

On 31st October, Mr. E. W. Ashcroft, who contributed an article on the subject in the August issue, lectured in the Central Library, Manchester, on "Railway Electrification in Manchester and South Lancashire."

The lecturer's aim was first to examine the reasons why railway electrification was urgently needed in the Manchester area, one of the most important being the question of smoke abatement. "In Manchester," Mr. Ashcroft pointed out, "the four main railway stations all stand within a mile and a half of each other in the centre of the city, and electrification of the suburban traffic would make a decided difference to the atmosphere. It is no exaggeration to say that ten per cent. of the smoke pollution in an area such as Manchester is from locomotives."

Mr. Ashcroft then examined the case for railway electrification from the point of view of the Railway Companies, and explained some of the problems they are up against in considering electrification, also pointing out that "owing to the Government's declared policy of affording capital guarantees to railway electrification schemes it is clear that railway electrification will come about in the Manchester area soon."

The Manchester, Salford, and District Branch is endeavouring to arrange for a shop window display, to take place from Dec. 1st to Christmas; the exact position has not yet been decided upon but it is hoped that it will be a fairly central one and draw the attention of the "man in the street" to the urgent need for a clearer and more smoke free atmosphere.

## • JOIN THE NATIONAL SMOKE ABATEMENT SOCIETY •

### WEST CENTRAL HOTEL

SOUTHAMPTON ROW, W.C. 1

Hot and Cold Water and Central  
— Heating in All Rooms —

**UNIFORM TARIFF 8/6**  
Room, Bath & Breakfast

FULL BOARD 13/- Daily } *Minimum*  
PARTIAL BOARD 11/- „ } *three days*

LUNCHEON 2/6      DINNER 3/6

TELEGRAMS - QUIETUDE, LONDON  
PHONE - MUSEUM 1400

### The Service Guild Ltd.

The Publishers of this Blotter will be pleased to hear from any Professional or Trade Society, or other Organisation that is desirous of issuing a YEAR BOOK without any cost. We have special facilities for giving this service, which is successfully carried out for various other Associations.

*Enquiries should be addressed to*

**THE SERVICE GUILD LTD.,**  
**49, Deansgate,**  
**MANCHESTER. 3**

Telephone: BLAckfriars 3313



# KEMPTON'S

## "KAYE" COKE FIRES

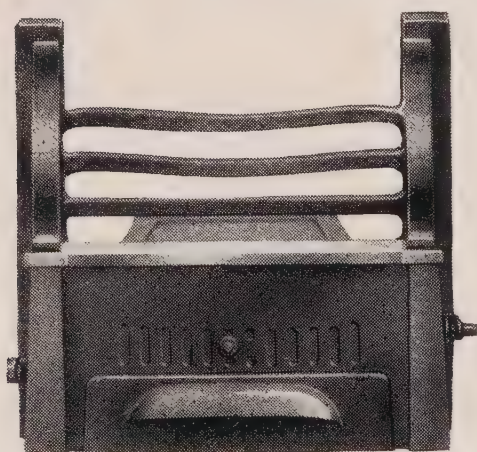
are specially designed for the efficient burning of Coke.

ALL Models fitted with the patent Rocking Bar attachment for ensuring a glowing fire.

No paper or wood required, as the fires are ignited by a gas burner.

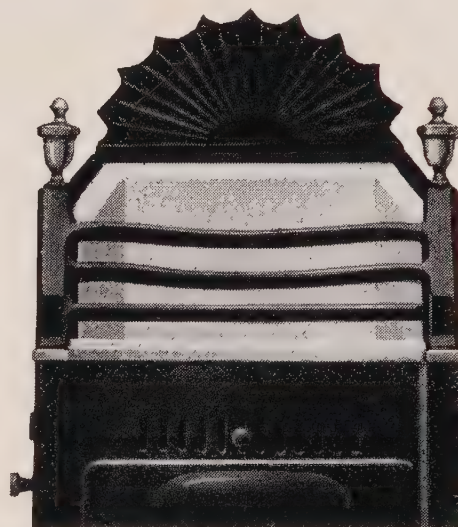
"KAYE" fires are economical to instal and maintain, and are labour saving.

COKE is cheaper than coal, clean to handle, and DOES AWAY WITH CHIMNEY SWEEPING.



"KAYE" No. 1 ADAPTER MODEL.

This fire can be fitted to any existing surround, whether iron or tiles. The surround is not interfered with in any way, only the firebricks being removed. New bricks, in sets of six are supplied for use with this pattern.



"KAYE" No. 4 BASKET MODEL.

This fire is suitable for use in a recessed fireplace with an open flue. No fixing is required.

"KAYE" Fires are made in many different styles : Complete fireplaces, Inset type, Basket, Independent, with Boiler, etc.

*Write or Telephone to :-*

**C. H. KEMPTON & CO., LTD.**  
**70 & 72 BENNERLEY ROAD, S.W.11.**

Phones : BATTERSEA 4991 (3 lines)

Head Office :-

**STANGATE HOUSE, 235 WESTMINSTER BRIDGE ROAD, S.E.1.**

Phones : WATERLOO 5535 (2 lines)



# **NEW\_**

## **IDEAL MAGAZINE BOILERS**

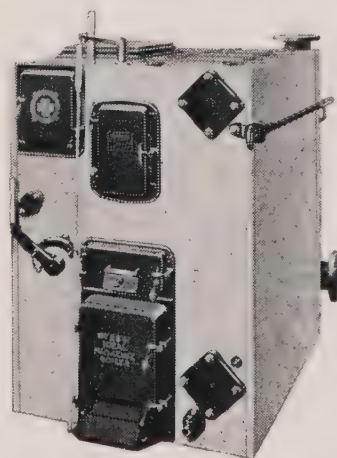
British Patent No. 392402



No. 2 Series, Cut View.

**Capacities from 148,000 to  
1,000,000 B.T.U. per hour**

For Coke or Anthracite.  
Gravity Feed. Sloping Grate.  
Minimum Clinker.  
Chimney draught.  
80% efficiency.  
Water-cooled grate.  
Right or left-hand magazine.  
Front charging door.  
Also top charging door for  
hopper feed.  
Longer intervals between  
stoking,  
All surfaces accessible for  
cleaning



No. 2 Series, with Jacket.

*Send for Descriptive List*

### **IDEAL BOILERS & RADIATORS**

LIMITED

**IDEAL WORKS, HULL, YORKS.**

*Showrooms :*

LONDON : Ideal House, Great Marlborough St., W.1. BIRMINGHAM : 35 Paradise St. Also at HULL















